

# A Monograph of *Laportea* (Urticaceae)

by

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*Laportea* was large and mixed. It defied definition and could only be identified by a system of elimination.

Now, with the ligneous species removed and *Fleurya* and *Spectrocnide* added to it, it is more natural, and can be defined thus: (a) herbs, rarely shrubs, with irritant hairs, (b) leaves petiolate, simple, alternate: lamina generally chartaceous with margin variously toothed; (c) stipules partially connate, bifid at the apex, intrapetiolar, (d) flowers unisexual, 4- or 5-merous, free or in loose glomerules, perianth not fleshy at maturity, (e) female pedicels winged, (f) achenes usually reflexed, often stipitate and sometimes on small gynophores, with ligulate stigmas, dispersed usually with the perianth attached.

A total of 22 species are accounted for in this genus which has two sections: sect. *Laportea* and sect. *Fleurya*. The former section, which contains 10 species, distinguishes itself from the latter, with 12 species, in the female pedicels being winged laterally. Essentially African, this genus of weedy herbs has a few species almost pan-tropical in distribution while two others have extremely wide ranges of climatic tolerance.

This work is based on the materials of the following herbaria supplemented by some field studies in South-East Asia:

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|-----------------------------------|--|
| Amsterdam, Holland (AMD).         | Lisboa, Portugal (LISC, LISJC & LISU). |
| Arnold Arboretum, U.S.A. (A).     | Lund, Sweden (LD).                     |
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| Kuching, Sarawak (SAR).           | Wrocklaw, Poland (WRSL).               |
| Lae, New Guinea (LAE).            | Zurich, Switzerland (Z).               |
| Leiden, Holland (L).              |  |

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### Part 1 — General

**Habit.** Most species are well branched annual herbs less than 2 metres high. The stem is usually weak and often woody only at the base. *L. ruderalis*, *L. cuneata* and *L. caffra* are the smallest in the genus. At the other end of the scale, we have *L. decumana* a species of tall perennial shrubs with woody stems. Generally erect, *L. peduncularis* and *L. ovalifolia* occasionally send out repent shoots which are claimed to be capable of scrambling over fairly great distances. *Laportea* therefore contrasts quite clearly from *Dendrocnide* a genus of perennial woody trees up to 35 metres high.

**Leaves.** Generally, they are simple, petiolate, dorsiventral, pinnerved, chartaceous, spirally or alternately arranged and with variously toothed margin. Overall, the similarity is with the leaves of *Urtica* rather than the other genera of the family.

The lamina offers good characteristics for the discrimination of the species. In some cases the form and dentition of the lamina are very specific as in *L. perrieri*, which has teeth 7–20 cm. in length, *L. ruderalis* whose very small lamina is completely glabrous and devoid of irritant hairs and *L. macrostachya* with an ovate lamina which is caudate-emarginate at the apex. In *L. decumana* and *L. floribunda*, the lamina is bullate and densely covered with erect irritant hairs, and the margins very finely denticulate. Only in one species is the lamina polymorphic i.e. in *L. cuneata* where its margin varies from almost entire to doubly serrated at different stages of its life.

**Petioles.** Only the vestiture of these is used to separate some species. In *L. grossa* and *L. mooreana*, they are covered with long mounted irritant hairs. In others, these hairs are not mounted but are either erect or appressed.

**Stipules.** These differ fundamentally from those of *Dendrocnide*. Here they are intrapetiolar but only partially connate. As a result, all are bifid at the apex. In *L. ovalifolia* the bifid portion is as long as the lower connate part. Most species have them to about 1 cm. in length, but *L. violacea* has stipules less than 0.3 cm. in length while in *L. decumana* they reach 2 cm.

**Inflorescences.** They are more variable here than in *Dendrocnide*. In most species, they are unisexual, paniculate and fairly well branched. The females are usually borne in the upper axils and are often more widespread than the males. *L. canadensis*, *L. bulbifera*, *L. alatipes* etc. illustrate this type of inflorescence well. In the Madagascar species as in *L. amberana* or *L. perrieri* this general pattern is slightly modified: branching occurs mainly at the top of the inflorescence and then weakly so. This reduction in the lateral branches is greatest in the *L. macrostachya* — *ovalifolia* group of species where they become somewhat elongated with the flowers glomerulated at intervals along the seemingly unbranched peduncle. Such "interrupted" inflorescences can be either unisexual as in *L. macrostachya* or bisexual as in *L. interrupta*. In *L. caffra* the inflorescence is very small, branched once at the top and usually bears less than 10 flowers. The most distinctive inflorescence is in *L. cuneata*. Here the males are apedunculate and are borne at the base of the corymbose female inflorescences.

**Male flowers.** These are somewhat similar not only to those of *Dendrocnide* but also to others in the tribe Urereae. They are small, 4- or 5-merous, sessile or pedicellate. Stamens are equal in number to the tepals and are always borne opposite to them on rather long reflexed filaments. The pistillode is always present as a thin often hyaline structure in the centre of the floral cavity. The tepals are of two sorts — corniculate or non-corniculate. This characteristic is extremely useful in the delimitation of the species if it is considered together with the other characteristics like number of tepals and presence or absence of the pedicel.

**Female flowers.** These are very important for the delimitation not only of the species but also of the two sections as well as of the genus as a whole. Basically they are 4-tepalled, with the lateral tepals much larger than the dorsi-ventrals, and pedicellate. The ovary is simple, asymmetrically ovoid, compressed and has a ligulate or somewhat linear stigma. Staminodes are absent. The "wings" on the pedicels distinguish this genus from *Dendrocnide*. Within the genus, the two sections differ from each other in the nature of these "wings". In section *Laportea*, the pedicels are winged laterally and symmetrically; whereas in sect. *Fleurya*, they are winged dorsi-ventrally and therefore somewhat asymmetrically. On the specific level, the nature of the dorsal tepal and stigma is found to be quite useful in distinguishing some species. *L. interrupta* and *L. ovalifolia* for example, are the only species with 3-fid stigmas. In length, the stigma is shortest in *L. cuneata* and *ruderalis* where it seldom exceeds 0.2 mm. and is consequently brush-like. At the other extreme is *L. decumana* whose stigma may reach 3–4 mm. The dorsal tepal may be greatly geniculate as in *L. mooreana*, *L. cuneata* and many others or non-geniculate as in *L. ovalifolia* in which case it is often only slightly shorter than the lateral tepals. In all species, the ventral tepal tends to be the smallest and in *L. mooreana* it is often absent.

**Achenes.** These are small, ranging from 1 to 5 mm. in length compressed, often greatly asymmetrical with the stigma displaced to one side. In sect. *Laportea*, they are somewhat larger, always stipitate and usually borne on gynophores. They are thus dispersed without the perianth. *L. perrieri* has the largest achenes up to 5 mm. in length and 3–4 mm. across. *L. disepala* has the shortest stipe being less than 0.2 mm. long. The longest pedicel (at fruit) is found in *L. amberana* where it reaches 10 mm. In shape, they are somewhat semi-circular in the *canadensis* — *alatypes* group of species and variously ellipsoid, obovate and almost circular as in *L. amberana*.

In sect. *Fleurya*, on the other hand, the achenes are slightly smaller, mostly sessile and not borne on gynophores. They are usually dispersed with the perianth attached. Excepting *L. ovalifolia* which has achenes to 4 mm. long, the rest of the species have them up to 2 mm. in length. In the stipitate species, *L. cuneata* and *L. ruderalis*, the stipes vary between 0.2 and 0.4 mm. In shape, they are generally ovoid excepting *L. floribunda* where they are obovoid. Despite the exceptions, the achene does provide good characters for the discrimination of the two sections generally.

**Distribution.** This genus is Africa-Madagascar centred. Of a total of 22 species, 12 are confined to this region (five being endemics of Madagascar). The north American continent has one species confined to that region i.e. *L. canadensis* which has been recorded from as far south as Mexico. The West Indies, broadly speaking, have also one species peculiar to these islands viz. *L. cuneata* which has so far been recorded from Cuba and Hispaniola. Continental Asia has three species endemic in that region viz. *L. disepala*, *L. violacea* and *L. macrostachya*. Malesia has one endemic species viz. *L. decumana* and another which it shares with the Pacific islands i.e. *L. ruderalis*.

The remaining 3 are about the widest distributed species in the genus: these are *L. aestuans*, *L. interrupta* and *L. bulbifera*. The first two are entirely tropical; and together they encircle the tropics! The last, *L. bulbifera*, has about the greatest climatic tolerance in the genus. It extends from the cold temperate regions of Manchuria and North Korea through South-east Asia to the hot tropics of Sumatra and Java, although in the latter countries they prefer the highlands above the 1,000-metre contour.

**Affinities.** Also a member of the *Urereae* tribe, *Laportea* was thought to be closest to *Sceptrocnide*, an Asiatic genus of herbs. After further study, the latter has now been found to be actually congeneric with the present genus. The phenomenon of the stamens being adnate to the tepals in *Sceptrocnide* has now been found to be an exception rather than a rule. Similarly, the stipules have been observed to be also intrapetiolar and partially connate as in *Laportea* and not free and lateral. This leaves *Nanocnide* (an Asiatic genus of small herbs) as the nearest relative of *Laportea*. This genus is similar to *Laportea* in almost all respects except that its achenes are erect (and not reflexed as in *Laportea*) and the stipules free and lateral.

## Part 2 — Systematic

LAPORTEA, *nom. cons.*

Gaud. in Freyc. Voy. Monde Bot. 498 "1826" (1830). — *Urticastrum* Heist. ex Fabric. En. Pl. Helmst. 204 (1759), *nom. rej.*; O.K. Rev. Gen. Pl. 2: 635 (1891), *p. p.* — *Oblixilis* Rafin. Fl. Tell. 3: 49 (1837). — *Laportea* sect. *Sclepsion* Wedd. in Arch. Mus. Hist. Nat. Paris 9: 123 (1856) et in DC. Prodr. 16 (1): 78 (1869), *p. p.*

Monoecious, very rarely dioecious, herbs or shrubs with irritant hairs. *Leaves* petiolate alternate, simple, chartaceous with variously toothed margin. *Stipules* intra-petiolar, incompletely connate, bifid at the apex. *Inflorescences* generally paniculate, pedunculate, axillary, with unisexual flowers in loose glomerules; peduncular bracts very small. *Male flowers* 4- or 5-tepalled, with an equal number of stamens opposite the tepals; filaments reflexed; pistillode present, small. *Female flowers* 4 tepalled, the lateral tepals equal-sized, the dorsi-ventral ones greatly unequal-sized, much smaller than the laterals, devoid of staminodes; ovary ovoid; style generally linear, rarely very short & brush-like. *Achenes* generally compressed, ovoid to semi-circular, sessile or stipitate, 1 to 4 mm. long, usually reflexed upon either dorsi-ventrally or laterally winged pedicels.

*Distribution:* Pan-Tropical.

*Lectotype species:* *Laportea canadensis* (L.) Wedd.

sect. *Laportea*

This section distinguishes itself by the pedicels of the female flowers being winged laterally and symmetrically; and the achenes articulated on pedicels.

*Type species:* *Laportea canadensis* (L.) Wedd.

Species are: nos. 1 to 10.

sect. *Fleurya*

(Gaud.) Chew in Gard. Bull. Sing. 21: 199 (1965). — *Fleurya* Gaud. in Freyc. Voy. Monde, Bot. 497 "1826" (1830). — *Schychowskia* Endl. in Ann. Wien Mus. 1: 187 (1836). — *Fleuryopsis* Opiz in Lotos 3: 240 (1853). — *Sceptrocnide* Maxim. in Bull. Acad. Petersb. 22: 230 (1877).

This section differs from sect. *Laportea* in (a) pedicels of female flowers winged dorsi-ventrally and asymmetrically, rarely simple, (b) achenes not articulated on pedicels.

*Lectotype species:* *Fleurya spicata* Gaud. [= *Laportea interrupta* (L.) Chew].

Species are: nos. 11 to 22.

Key to the Species of *Laportea*

- 1 — a. Stigma 3-fid, the central branch longer than the lower two; inflorescences appear unbranched due to great reduction of lateral branches ..... 2  
 b. Stigma simple, without branches; inflorescences variable ..... 3
- 2 — a. Plant without stolons; inflorescences bisexual, axillary; stigmas less than 1 m.m. long; male perianth with 4 corniculate tepals (Central & East Africa to Australia & Pacific) ..... **L. interrupta**  
 b. Plant with stolons; inflorescences unisexual, often produced from stolons; stigmas 2–3 mm. long; male perianth with 5 non-corniculate tepals (tropical Africa) ..... **L. ovalifolia**
- 3 — a. Plant less than 60 cm. high, completely glabrous and quite without irritant hairs; inflorescence paniculate, well branched, shorter than leaves; male flowers 4-merous, tepals corniculate; stigma almost brush-like, less than 0.2 mm. long (East Malesia & Pacific Islands) ..... **L. ruderalis**  
 b. Not this combination of characters ..... 4
- 4 — a. Inflorescences unisexual; the females corymbose, axillary; the males apedunculate, at the base of the female inflorescence; small herbs less than 60 cm. high dense with long hyaline irritant hairs; stigma brush-like less than 0.2 mm. long. (Cuba & Hispaniola) ..... **L. cuneata**  
 b. Not this combination of characters ..... 5
- 5 — a. Lamina rugose, densely covered with erect irritant hairs, with finely denticulate margin ..... 6  
 b. Lamina smooth, with appressed irritant hairs, margin serrate or dentate, sometimes coarsely to profoundly ..... 7
- 6 — a. Lamina elliptic; male flowers sessile, 5-merous; stigma less than 0.5 mm. long; female pedicel not winged laterally (Madagascar) ..... **L. floribunda**  
 b. Lamina ovate, rhombic to trullate; male flowers pedicellate, 4-merous; stigma 2 to 3 mm. long; female pedicel winged laterally (Borneo & East Malesia) ..... **L. decumana**
- 7 — a. Lamina almost rotund, base cordate, margin very profoundly dentate with few teeth each to at least 7 cm. long and 3 cm. broad at the base; female inflorescences with very stout peduncle, much longer than the leaves (Madagascar) ..... **L. perrieri**  
 b. Not this combination of characters ..... 8
- 8 — a. Teeth of lamina ca. 3 cm. long, 2 cm. broad at the base, the apex of lamina often profoundly emarginate, with a long narrow cauda; female inflorescences elongated, spike-like, mainly in the upper axils (Japan, China, Burma) ..... **L. macrostachya**  
 b. Teeth of lamina smaller, the apex of lamina acuminate, sometimes acute but not caudate-emarginate; if unisexual, female inflorescences not elongated and spike-like ..... 9
- 9 — a. Teeth of lamina small very numerous, not exceeding 0.5 cm. long; annual herbs ..... 10  
 b. Teeth of lamina larger, fewer in number, usually between 0.7 cm & 2 cm. long; annual herbs or perennial shrubs ..... 18
- 10 — a. Female inflorescences 2 to 3 times longer than the leaves (inclusive of petioles), with a stout elongated peduncle branched sparsely towards the apex; margin of lamina irregularly toothed (Madagascar) ..... **L. septentrionalis**  
 b. Female inflorescences shorter to at most slightly longer than leaves, well branched panicles; margin of lamina regularly toothed ... 11

- 11 — a. Herbs with glandular hairs (tropical America, Africa, India to Sumatra) ..... **L. aestuans**  
 b. Herbs without glandular hairs ..... 12
- 12 — a. Herbs less than 50 cm. high; inflorescences very small, frail, branched once at the apex bearing very few flowers; lamina ovate less than 3 cm. long (South Africa) ..... **L. caffra**  
 b. Herbs more than 60 cm. high; inflorescences much larger, with stout branches, bearing numerous flowers; lamina variously shaped, at least 5 cm. long ..... 13
- 13 — a. Plant often creeping or scrambling; female pedicel winged dorsiventrally, especially at fruit; achene sessile not borne on gynohores, (East South-East & South Africa) ..... **L. peduncularis**  
 b. Plant erect; female pedicel winged laterally; achene stipitate, borne on gynophores ..... 14
- 14 — a. Male flowers with 4 non-corniculate tepals; achene ovoid, the lateral sides depressed and warted (Thailand & Indo-China) ..... **L. disepala**  
 b. Male flowers 5-tepalled, or if 4-tepalled, then tepals corniculate; achene often semi-circular in shape, the lateral sides not warted, or if warted, not depressed ..... 15
- 15 — a. Male flowers sessile to subsessile, with 5 non-corniculate tepals; base of lamina truncate; achene warted at the sides (China, Thailand & Indo-China) ..... **L. violacea**  
 b. Not this combination of characters ..... 16
- 16 — a. Woody bulbils often present in the axils of leaves; male flowers with 5 non-corniculate tepals (Asia) ..... **L. bulbifera**  
 b. Woody bulbils absent; male flowers with corniculate tepals ... 17
- 17 — a. Male flowers with 5 tepals; achenes semicircular (North America) ..... **L. canadensis**  
 b. Male flowers with 4 tepals; achenes somewhat pyriform (Africa) ..... **L. alatipes**
- 18 — a. Achenes completely covered by lateral tepals at maturity, very slightly reflexed; the dorsi-ventral tepals equal-sized; female pedicels not winged laterally; lamina narrowly ovate to elliptic (Central & East Africa) ..... **L. lanceolata**  
 b. Achenes not completely covered by lateral tepals at maturity, strongly reflexed; the dorsi-ventral tepals greatly unequal-sized; female pedicels winged laterally; lamina triangular to ovate, rarely elliptic ..... 19
- 19 — a. Lamina generally triangular, base truncate; petioles armed with long mounted irritant hairs; female pedicels winged dorsiventrally ..... 20  
 b. Lamina ovate to very broadly so; base rounded or profoundly cordate; irritant hairs of petioles not mounted, female pedicels winged laterally ..... 21
- 20 — a. Inflorescences usually longer than leaves; male flowers with 4 corniculate tepals; lamina with marginal teeth ca. 1.5 cm. long, 0.5 cm. broad at the base; intercostals numerous, closely set, rather prominent (East, Central & West Africa)... **L. mooreana**  
 b. Inflorescences usually shorter than leaves; male flowers with 5 non-corniculate tepals; lamina with marginal teeth ca. 1 cm. long, 1 cm. broad at the base; intercostals few, anastomosing, not prominent (South-East & South Africa) ..... **L. grossa**
- 21 — a. Lamina very broadly ovate; base profoundly cordate; margin very irregularly toothed (Madagascar) ..... **L. amberana**  
 b. Lamina ovate; base rounded; margin rather regularly toothed (Madagascar) ..... **L. weddellii**

(1) **Laportea canadensis** (L.) Wedd. in Ann. Sci. Nat. Ser. 4. 1: 181 (1854), in Arch. Mus. Hist. Nat. Paris 9: 123. tab. 2c, fig. 2-4 (1856) & in DC. Prodr. 16 (1): 78 (1869). — *Urtica canadensis* L. Sp. Pl. 985 (1753). — *U. divaricata* L. *op. cit.* (1753). — *Fleurya canadensis* (L.) Benth. in Hk. Niger. Fl. 517 (1849). — *U. pustulata* Liebm. in Vidensk. Selsk. Skr. 5 (2): 294 (1851). — *L. pustulata* (Liebm.) Wedd. in Arch. Mus. Hist. Nat. Paris 9: 140 (1856). — *Urticastrum divaricatum* (L.) O. K. Rev. Gen. Pl. 2: 635 (1891). — *L. divaricata* (L.) Lunell in Amer. Midl. Nat. 4 (7): 301 (1916).

*Diagnosis:* Annual monoecious herbs with tuberous roots; the female inflorescences mainly subterminal, the males at the lower axils; flowers pedicellate, the males 5-tepalled, strongly corniculate, the females with 4 free tepals, a linear unbranched stigma and glabrous laterally winged pedicels; the achenes semi-circular, stipitate, on gynophores, smooth, without wings.

*Distribution:* Canada, U.S.A. (temperate parts) and Mexico (highlands).

Monoecious annual herb, 1 to 2 m. high, with tuberous roots. *Stem* slightly woody at the base, rarely branched, usually covered with long white irritant hairs, especially on the apex, without glandular hairs; stipular scars inconspicuous, petiolar scars conspicuous. *Lamina* (7-) 10-15 (-20) cm. long, (3-) 7-9 (12) cm. broad, ovate to broadly ovate, rarely elliptic, chartaceous, without glandular hairs; irritant hairs of the upper surface very short, appressed, scattered, those of the lower surface mainly on midrib, especially the basal part; cystoliths of both surfaces minute punctiform; base generally rounded to slightly cuneate; apex acuminate, often sharply, 1-2 cm. long; margin dentate, rarely serrate, teeth to 0.5 cm. long with base to 0.5 cm. broad; lateral veins 6-8 pairs, prominent, the basal pair reaching to about half the length of lamina; intercostals numerous, straight, rarely very prominent. *Petiole* (3-) 5-10 (-15) cm. long, usually covered with fairly long irritant hairs, especially the distal half. *Stipule* to 0.6 cm. long, connate, intrapetiolar, bifid, the two tips as long as the lower connate part, triangular, chartaceous, with very few short irritant hairs, very rarely caducous. *Inflorescence* unisexual, paniculate, well branched, axillary, usually solitary, without bulbils, with minute peduncular bracts, with peduncle usually densely covered with irritant hairs; the male (5-) 9-10 cm. long, 5-7 cm. broad, usually in the lower axils; the female 10-15 cm. long, 5-7 cm. broad, usually in the upper axils or subterminal; the male usually wide spread, the female narrower and longer. *Male flower* pedicellate; perianth ca. 1 mm. long and broad, glabrous to well covered with irritant hairs at the apex; tepals 5, strongly corniculate, cymbiform; stamens 5, with slightly reflexed filaments to 1.5 mm.

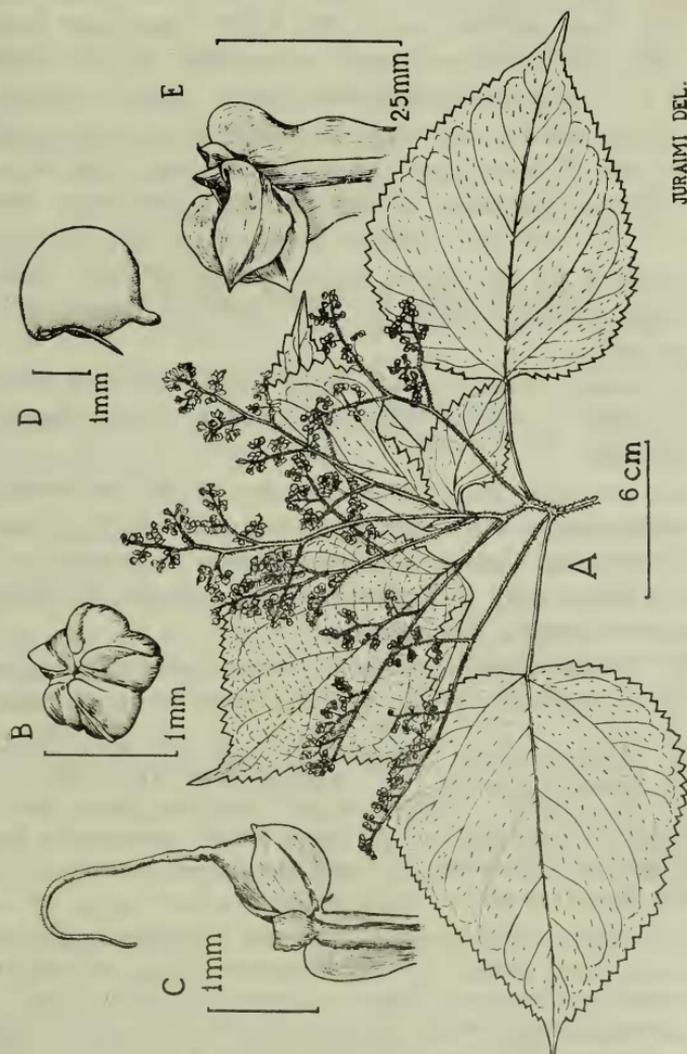


Fig. 1. *L. caradensis*: A, twig; B, male flower; C, female flower; D, achene; E, pedicel.

long; pistillode ca. 0.5 mm. long, as broad at the apex, obpyramidal; interfloral bracts numerous, minute, narrowly triangular; pedicel to 1 mm. long, articulated at about midpoint, glabrous. *Female flower* pedicellate; perianth with 4 free tepals, the two lateral tepals ca. 1 mm. long and broad, asymmetrical, enclosing the ovary, glabrous; the dorsal one ca. 0.3 mm. long and broad, strongly geniculate, often with few short irritant hairs; the ventral ca. 0.25 mm. long, narrow; ovary ca. 1 mm. long and broad, asymmetrically ovoid; stigma linear, unbranched, slightly kinked at the base, to 2 mm. long; interfloral bracts minute, numerous, narrowly elliptic; pedicel ca. 1 mm. long, winged laterally, usually glabrous. *Achene* 2.5 mm. long and broad, stipitate, with stipe to 0.5 mm. long, on gynophore ca. 0.4 mm. long and broad, semi-circular in shape, smooth, without wing, ridge nor depression, one third covered by the lateral tepals, greatly reflexed; pedicel to 3 mm. long; strongly winged laterally, glabrous; dispersed free from the perianth

A fairly common weed in rich Beech-Maple-Hemlock woods. Vernacular names are Wood Nettle or Canadian Nettle (English); Ortega (Mexican).

As I have not seen the types of *canadensis* and *divaricata*, I base my interpretation of this species on that of Weddell. A native of the cold temperate regions of North America, it extends to the tropics in the south, only as highland plants, occurring in Mexico at an altitude of about 2,200 metres.

This and the following two form a very closely allied group of species which differ from each other in rather minor characters.

CANADA:—Manitoba Prov.: *Marshall 21*, July 1940 (UC).—Ontario Prov.: Bruce Peninsula: Stokes Bay: *Krotkov 8976*, Aug. 1934 (A).—Quebec Prov.: Gatineau Co.: Gatineau Park: *Groh 1631*, Sept. 1941 (S).—New Brunswick: Restigouche & Malapedia rivers: *Rousseau & Bovin 32033*, July 1929 (A).—Nova Scotia: Hants Co.: Five-mile River: *Pease & Long 21040*, July 1920 (A).

UNITED STATES:—Alabama State: Clay Co.: *Earle 892*, Aug. 1828 (NY).—Arkansas State: Desha Co.: *McDaniel 1401*, Sept. 1959 (NY).—Connecticut State: Bridgeport: *Emes 1*, Sept. 1895 (A).—Distr. of Columbia: Potomac River: *Morris 311a*, Sept. 1899 (F).—Indiana State: Jenings Co.: *Friesner 21785*, Aug. 1947 (BR, MICH & S).—Kansas State: Woodson Co.: *Lathrop 1780*, Sept. 1955 (NY).—Louisiana State: St. Landry: *Correll 9472*, July 1938 (A).—Massachusetts State: Hampden Co.: Brookside: *Seymour 17*, Sept. 1913 (A, MO & NY).—Michigan State: Bernien Co.: Benton: *Voss 7551*, July 1958 (MICH).—Nebraska State: Niobrara River Valley: *Tosted 652*, Aug. 1936 (A).—North Carolina State: Alamance Co.: *Bowner 60*, Sept. 1957 (MEL).—North Dakota State: McHenry Co.: *Boivin & Dore 8149*, July 1961 (NY).—Oklahoma State: Comanche Co.: *Stevens 1361*, June 1913 (POM).—Washington State: Falcon Valley: *Suksdorf s.n.* (L).

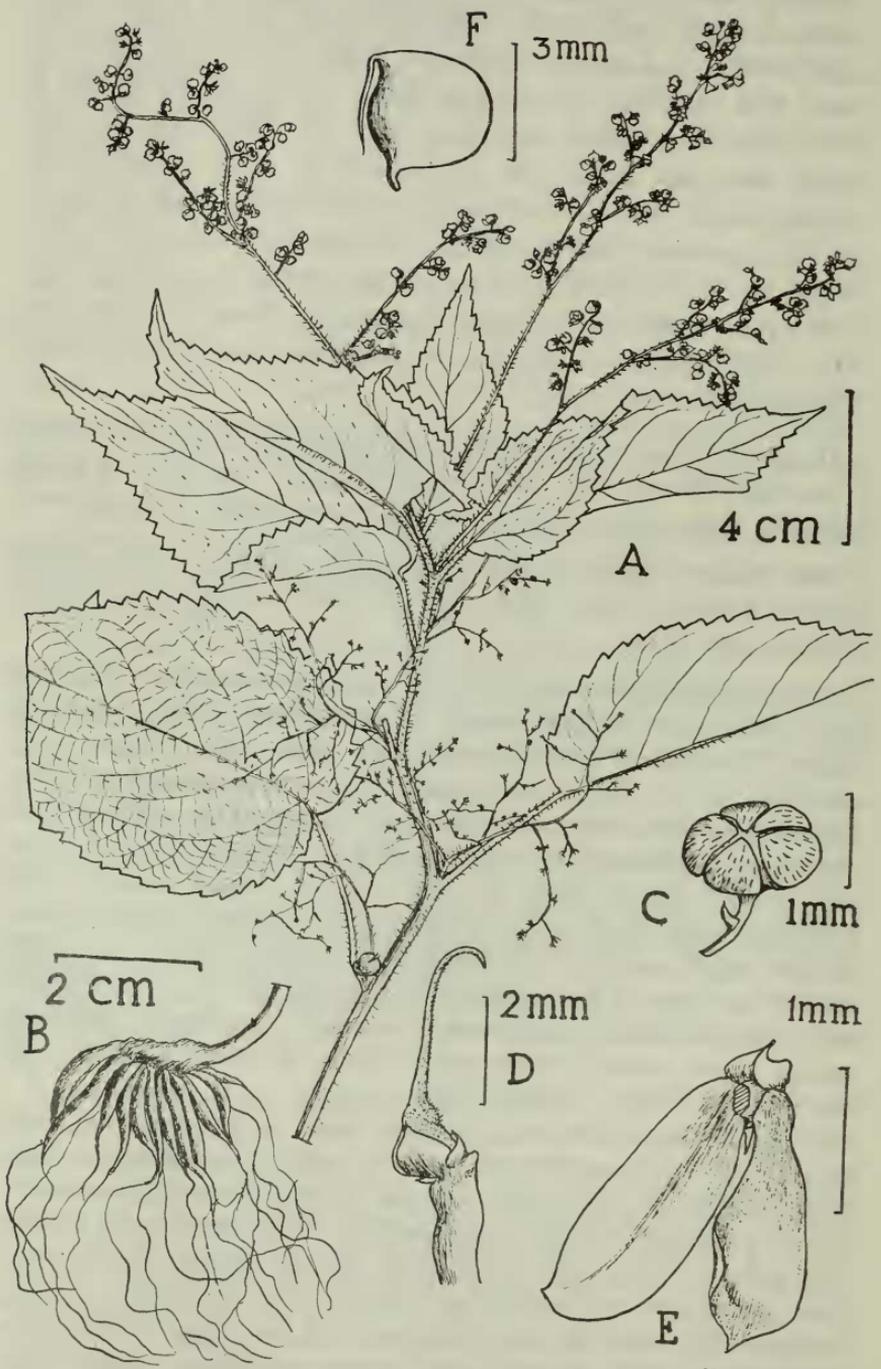
MEXICO:—Nuevo Leon State: Sierra Madre Oriental: *Meyer & Rogers 2824*, July 1948 (MO, U & UPS).—Tamaulipas State: Gomez Farías Region: *Martin H.32*, May 1953 (MICH).

- (2) *Laportea bulbifera* (Sieb. & Zucc.) Wedd. in Arch. Mus. Hist. Nat. Paris 9: 139 (1856) et in DC. Prodr. 16 (1): 82 (1869). — *Urtica evitata* Wall. Cat. 4588 (1832), nom. nud. — *U. bulbifera* Sieb. & Zucc. in Abhandl. Math.-Phys. Kl. Baier. Akad. 4 (3): 214 (1846). — *Laportea terminalis* Wight, Ic. Pl. Ind. or. 6: 9. tab. 1972 (1853). — *L. oleracea* Wedd. in op. cit. 141 (1856) et 87 (1869). — *Fleurya bulbifera* (Sieb. & Zucc.) Bl. ex Miq. Ann. Mus. Bot. Lugd. Bat. 3: 132 (1867). — *L. evitata* Wedd. in op. cit. 79 (1869). — *Urticastrum bulbiferum* (Sieb. & Zucc.) O. K., *evitatum* (Wedd.) O. K., *oleraceum* (Wedd.) O.K. Rev. Gen. Pl. 2: 635 (1891). — *L. sinensis* Wright in J. Linn. Soc. 26: 474 (1899). — *L. dielsii* Pampan. in Nuov. G. Bot. Ital. 17: 255 (1910). — *Boehmeria bodinieri* Leveille in Fedde, Repert, 11: 550 (1913).

*Diagnosis:* Closely related to *L. canadensis* from which it differs in the male flowers with non-corniculate tepals, the axils of leaves normally with woody bulbils and the roots seldom tuberous.

*Distribution:* Japan, Korea, Manchuria, China, Tibet, Nepal, Sikkim, Bhutan, Assam, India, Ceylon, Burma, Thailand, Vietnam, Sumatra and Java.

Monoecious annual herb to 2 m. high, occasionally with tuberous roots. *Stem* slightly woody at the base, rarely branched, sparsely to densely covered with long white rigid irritant hairs, especially at the nodes and apex, old parts becoming glabrous without glandular hairs; stipular scars inconspicuous, petiolar scars conspicuous; often with woody bulbils at the leaf axils. *Lamina* (5-) 10-15 (-23) cm. long, (3-) 5-8 (-12) cm. broad, usually ovate to broad ovate, chartaceous, without glandular hairs; irritant hairs of the upper surface well distributed, slightly more on midrib and veins, those of the lower surface mainly on midrib and veins, especially the basal; cystoliths very minutely punctiform, numerous on the upper surface, often absent from the lower surface; base rounded to slightly cuneate, rarely cordate; apex acuminate, 1-2 cm. long; margin serrate to dentate, teeth to 0.5 cm. long, with base to 0.5 cm. broad; lateral veins 4-6 pairs, prominent, the basal pair reaching to more than half the length of the lamina; intercostals numerous, usually anastomosing, often rather faint. *Petiole* (2-) 4-8 (-10) cm. long, sparsely to densely covered with irritant hairs sometimes to 3 mm. long. *Stipule* 0.5-1 cm. long, connate, intrapetiolar, bifid, the two tips about half the length of the lower connate part, often even shorter, ovate cymbiform, chartaceous, often with short appressed irritant hairs, early caducous. *Inflorescence* unisexual, paniculate, well branched, axillary, solitary, very rarely paired, with or without bulbils, with peduncular bracts to 1 mm. long, peduncle very sparsely covered with short appressed irritant hairs to densely armed with long rigid ones; the male 4-6 (-10) cm. long, 3-9 cm. broad, usually in the lower axils; the



JURAIMI DEL.

Fig. 2. *L. bulbifera*: A, twig B, tuberous roots; C, male flower; D, female flower; E, female perianth; F, achene.

female (7-) 10-20 (-30) cm. long, (2-) 5-10 (-15) cm. broad, usually in the upper axils or subterminal; the male usually wide spread, the female usually narrower and longer. *Male flower* pedicellate; perianth ca. 1 mm. long and broad, almost glabrous to densely pubescent with irritant hairs; tepals 5, non-corniculate, cymbiform; stamens 5, with reflexed filaments to 1.5 mm. long; pistillode ca. 0.5 mm. long, as broad at the apex, obpyramidal; interfloral bracts to 1 mm. long, irregular in number, narrowly elliptic; pedicel to 1 mm. long, articulated near the apex, glabrous to light pubescent. *Female flower* pedicellate; perianth with 4 free tepals, the two lateral tepals ca. 1 mm. long and broad, asymmetrical, enclosing the ovary, with short appressed irritant hairs, the dorsal one ca. 0.4 mm. long and broad, strongly geniculate, with short irritant hairs, the ventral ca. 0.25 mm. long, narrow cymbiform; ovary ca. 1 mm. long and broad, asymmetrically ovoid; stigma linear, unbranched, reflexed, to 3 mm. long; interfloral bracts minute, irregular in number; pedicel ca. 1 mm. long, slightly winged laterally, often glabrous. *Achene* to 3 mm. long and broad, stipitate, stipe 0.5 mm. long, on gynophore to 0.3 mm. long and broad, semi-circular in shape, smooth, without wing, ridge nor depression, one quarter covered by the lateral tepals, greatly reflexed; pedicel to 2.5 mm. long, strongly winged laterally, glabrous; dispersed free from perianth.

This species is indeed very close to *L. canadensis*. Both have somewhat the same habit of growth, leaf-form, inflorescence and in fact similarly shaped achenes. The main difference between them is in the male flowers whose tepals are not corniculate in this species.

Again as in the preceding species, *L. bulbifera* has also a very great latitudinal distribution, extending from cold temperate Manchuria right into the hot tropics in Java, although in the tropical countries it occurs as montane plants.

The types of *sinensis*, *dielsii* and *bodinieri* have been examined and found to be conspecific and referable to this species.

The following are a small selection of well over 100 collections studied.

JAPAN:—Hokkaido: near Nopporo: *Dorsett & Morse 1043*, Sept. 1929 (NY).—Hondo: Mt. Gaki-dake: *Furuse 18966*, July 1951 (S).—Yokohama: *Maximowicz s.n.* (BM, FI, M & US).—Nagasaki: *Maxmowicz s.n.* (BM, BO, C, K & S).—sine loc.: *Siebold s.n.* 1842 (type of *U. bulbifera*: M).

KOREA:—North: Kirin Prov.: *Komarov 514*, Aug. 1896 (A, BM, FI, K, LD, NY & P).—South: Mt. Odae *Chung 2970*, July 1946 (F & MICH).

MANCHURIA:—near Kyaolinzy: *Litvinov 2162*, Aug. 1902 (A & NY).

CHINA:—Kweichow Prov.: *Bodinier 1748*, Aug. 1897 (type of *B. bodinieri*: E).—Hupei Prov.: *Silvestri 409*, Oct. 1906 (types of *L. dielsii*: FI).—West Szechuan: *Pratt 111* (syntypes of *L. sinensis*: BM & K).—Yunnan: *Henry 11198* (E, K, MO & NY).

TIBET:—Konbo Prov.: *Ludlow et al. 5289 & 5738*, July 1938 (BM & E).

SIKKIM:—sine loc.: *Hooker f. s.n.* (type of *L. oleracea*: A, BM, G-DC & P).

INDIA:—Avalangy: *Wight herb. 2681*, Oct. 1852 (type of *L. terminalis*: C, K, L, M & MEL).—Kodaikanal: *Fischer 3079* (K).

CEYLON:—sine loc.: *Thwaites 3336* (BM, CGE, G-DC & K).

BURMA:—Shan States: *MacGregor 713*, Sept. 1909 (E).

THAILAND:—Chiangmai: *Garrett 1100*, Oct. 1938 (A, BO, K & L).—Doi Sutep: *Kerr 2729*, Oct. 1912 (BM & K).

VIETNAM:—Tonkin: *Poilane 12797* (P).

SUMATRA:—Mt. Kerintji: *Bunnemeyer 8812*, March 1920 (B, BO & SING).

JAVA:—Pasoeroean: *van Steenis 7312*, June 1935 (A, BO, BRI, L & SING).—Mt. Malabar: *Hochreutiner 1308*, July 1904 (L & Z).

(3) *Laportea alatipes* Hk. f. in J. Linn. Soc. Bot. 7: 215 (1864); Wedd. in DC. Prodr. 16 (1): 79 (1869); Letouzey, in Fl. Cameroun, 8: 117. pl. 18 (1968). — *Urticastrum alatipes* (Hk. f.) O.K. Rev. Gen. Pl. 635 (1891). — *Fleurya urticoides* Engl. in Bot. Jahrb. 33: 122 (1902); var. *glabrata* Rendle in Prain, Fl. Trop. Afr. 6 (2): 248 (1917). — *Girardinia marginata* Engl. in op. cit. 123 (1902). — *F. alatipes* (Hk. f.) Brown in Dyer, Fl. Cap. 5 (2): 547 (1925).

*Diagnosis*: It distinguishes itself from the preceding species by the following characters: (a) male flowers 4-tepalled, (b) the achenes somewhat pear-shaped and not semi-circular, (c) stipe of the achene up to 1 mm. long.

*Distribution*: Kenya, Tanganyika, Nyasaland, Southern Rhodesia, South Africa, Belgium Congo and Cameroun.

Monoecious annual (?) herb to 1.5 m. high, very rarely with stolons. *Stem* slightly woody at the base, usually unbranched covered with rather long irritant hairs, without glandular hairs; stipular scars fairly conspicuous, petiolar scars quite conspicuous. Lamina (4-) 8-15 (-20) cm. long, (2-) 4-8 (-13) cm. broad, ovate, rarely narrowly, chartaceous, without glandular hairs; irritant hairs of the upper surface dispersed, those of the lower surface mainly on midrib and veins; cystoliths of both surfaces punctiform; base generally rounded, sometimes slightly cordate, very rarely cuneate; apex acuminate, often sharply, usually less than 1.5 cm. long; margin serrate, very rarely serrulate or dentate, teeth to 0.5 cm. long, with base to 0.5 cm. broad; lateral veins 5-7 pairs, prominent, the basal pair reaching to more than half the length of lamina; intercostals numerous, fairly straight and prominent. *Petiole* (2.5-) 5-12 (-16) cm. long, usually well covered with irritant hairs. *Stipule* to 1.5 cm. long, connate, intrapetiolar, bifid, the two tips shorter than the lower connate part, triangular, chartaceous, almost glabrous. *Inflorescence* unisexual, paniculate, well branched, axillary, solitary, without bulbils, with minute peduncular bracts, peduncle usually well armed with irritant hairs; the male 3-10 cm. long, 2-6 cm. broad, usually in the lower axils; the female 10-20 cm. long, 5-10 cm. broad, usually in the upper axils or subterminal; the male very small compared to the female. *Male flower* pedicellate; perianth to 1 mm. long and broad, rarely without irritant hairs at the apex, usually lightly pubescent; tepals 4,

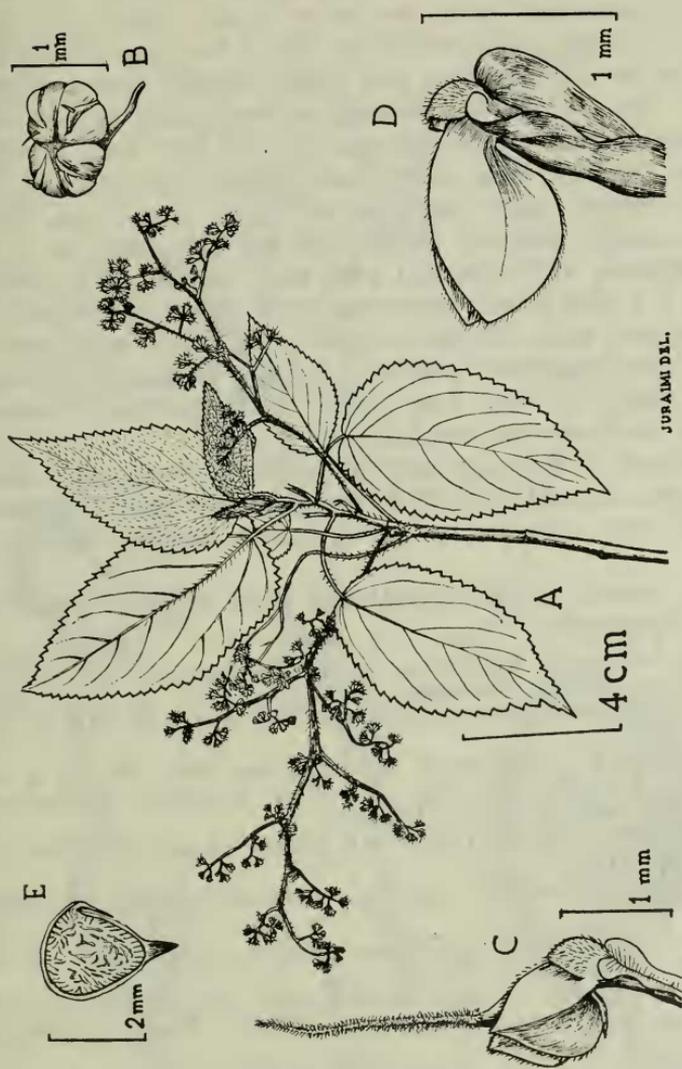


Fig. 3. *L. alatifipes*: A, twig; B, male flower; C, female flower; D, pedicel; E, achene.

usually corniculate; stamens 4, with reflexed filaments to 1.6 mm. long; pistillode ca. 0.4 mm. long, ca. 0.3 mm. broad, obconical; interfloral bracts to 0.8 mm. long, ca. 0.2 mm. broad, narrow ovate, irregular in number, fringed with short irritant hairs; pedicel to 1 mm. long, articulated near the apex, glabrous. *Female flower* pedicellate; perianth with 4 free fringed tepals, the two laterals tepals to 1 mm. long, ca. 0.4 mm. broad, enclosing the ovary, very light pubescent with few short irritant hairs, the dorsal one up to 0.5 mm. long, geniculate, with a few long irritant hairs, the ventral ca. 0.4 mm. long and broad, broadly ovate; ovary ca. 0.7 mm. long, ca. 0.6 mm. broad, asymmetrically ovoid; stigma linear, unbranched, slightly reflexed, up to 2 mm. long; interfloral bracts ca. 0.6 mm. long, ca. 0.3 mm. broad, narrow ovate, irregular in number, glabrescent; pedicel ca. 1 mm. long, winged laterally, usually glabrous. *Achene* ca. 1.6 mm. long, ca. 1 mm. broad, stipitate, with stipe to 1 mm. long, on gynophore 0.4 mm. long and 0.3 mm. broad, somewhat pyriform, often smooth, with a very narrow wing, the lateral sides often raised, with tepals at the base, greatly reflexed; pedicel to 1.5 mm. long, strongly winged laterally, with few very long irritant hairs, otherwise glabrous; dispersed free from the perianth.

A highland or montane species occurring above the 1,500 m. contour, this is said to be very common in clearings in Podocarpus forests. Cooper recorded its use to punish naughty boys in the Congo!

Native names: Kwisa (Nyasaland), Itusa & Hou (Congo) and Kenjie (Cameroun).

KENYA:—Aberdare Mt.: *Fries & Fries 708*, Jan. 1922 (BR, S, UPS & Z).—Kakamega Forest: *Drummond & Hemsley 4757*, Oct. 1953 (BR, FI & S).—Nakuru Distr.: *Maas Geesteranus 5904*, Aug. 1949 (BR, F, G, L, MO, S & UC).

TANGANYIKA:—Kilimanjaro Mt.: *Schlieben 4906* (BR, G & Z).—Proto Mts.: *Richards 9707*, May 1957 (BR).—Kwegoka: *Drummond & Hemsley 2711*, May 1953 (BR, LISC & S).

NYASALAND:—Mlanje Distr.: Mt. Mlanje: *Brass 16572*, July 1946 (MO, NY & US).

SOUTHERN RHODESIA:—sine loc.: *Wild 4437*, March 1954 (MO & UPS).

SOUTH AFRICA:—Griqualand east: Zuurberg: *Tyson 1772*, Feb. 1884 (SAM).—Mt. Curie: *DFO. 579* (Z).

BELGIUM CONGO:—Olbert National Park: *Lebrun 8715*, Nov. 1937 (BR).—Mikeno Mt.: *Linder 2390*, March 1927 (A).—Ruwenzori: *Bequaert 4258*, May 1914 (BR).

CAMEROUN:—sine loc.: *Mann 1973* (type of *L. alatipes*: K); *Preuss 916* (type of *F. urticoides*: K).

(4) *Laportea disepala* (Gagn.) Chew in Gard. Bull. Sing. 21: 200 (1965). — *Fleurya disepala* Gagn. in Bull. Soc. Bot. Fr. 75: 556 (1928).

*Diagnosis*: This differs from all others of sect. *Laportea* in the following characters: (a) the lateral sides of the achene with a slightly raised ridge enclosing a warty depression, (b) the lateral tepals displaced to one side at the base of the achene.

*Distribution*: Thailand, Cambodia and South Vietnam.

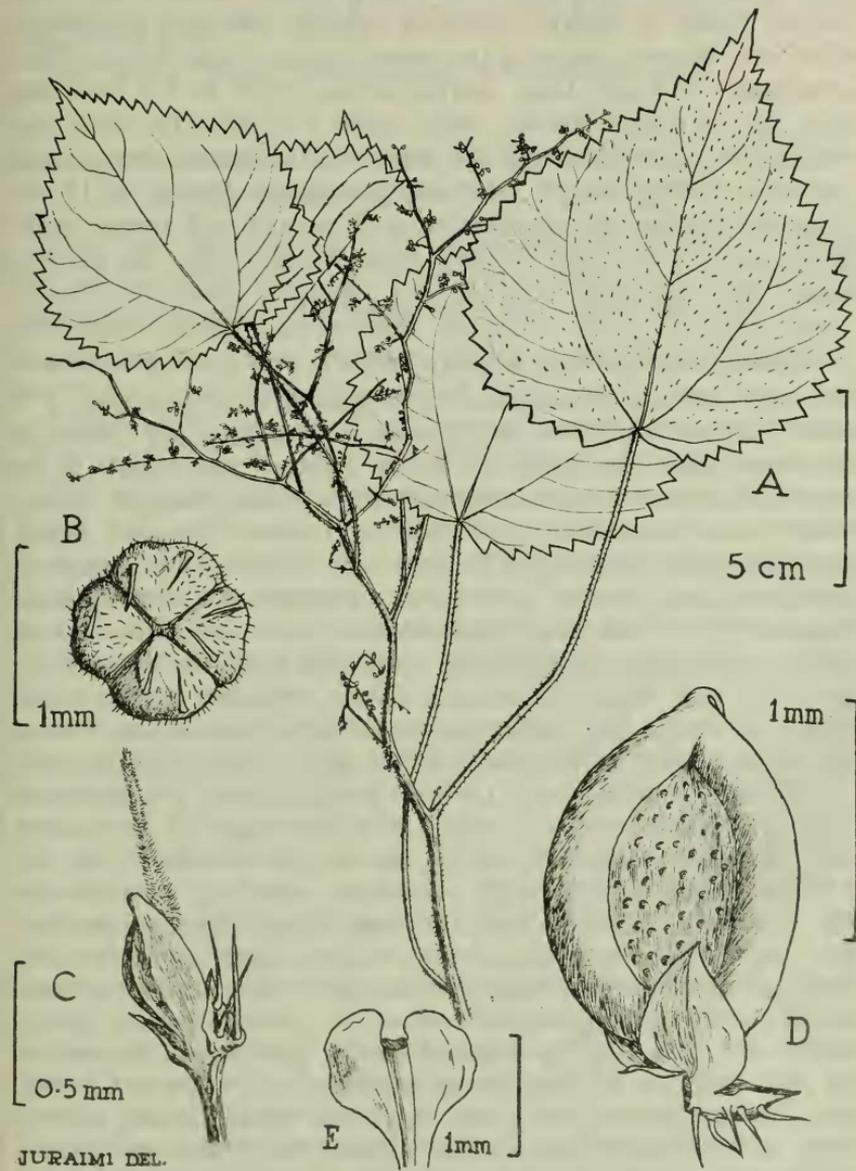


Fig. 4. *L. disepala*: A, twig; B, male flower; C, female flower; D, achene; E, pedicel.

Monoecious annual herb to 60 cm. high. *Stem* slightly woody at the base, unbranched, well covered with long and short irritant hairs especially at the apex, without glandular hairs; petiolar scars conspicuous, stipular scars not so. *Lamina* 5–14 cm. long, 5–11 cm. broad, broad ovate, chartaceous, without glandular hairs; irritant hairs of the upper surface fairly dense, those of the lower surface mainly on midrib, veins and veinlets; cystoliths punctiform, often very minute, more on the upper surface; base cordate; apex acuminate, to 1 cm. long; margin serrate, teeth to 0.5 cm. long, with base to 0.5 cm. broad; lateral veins 4–5 pairs, the basal pair reaching to more than half the length of the lamina; intercostals numerous, fairly straight, not very prominent. *Petiole* to 15 cm. long, often longer than the lamina, well covered with irritant hairs. *Stipule* ca. 0.5 cm. long, connate, intra-petiolar, bifid, the two tips longer than the lower connate part, narrowly triangular, chartaceous, glabrous, early caducous. *Inflorescence* usually unisexual, paniculate, well branched, axillary, solitary, very rarely paired, with few very minute peduncular bracts, peduncle well covered with rather long irritant hairs; the male ca. 7 cm. long, 3 cm. broad, at the lower axils; the female to 16 cm. long, 10 cm. broad, in the upper axils or subterminal; the male much smaller than the female. *Male flower* pedicellate; perianth ca. 1 mm. long and broad, densely covered with short to very long irritant hairs; tepals 4, non-corniculate, broad cymbiform; stamens 4, with reflexed filaments to 1.5 mm. long; pistillode ca. 0.4 mm. long, ca. 0.2 mm. broad at the apex, obpyramidal; interfloral bracts narrow elliptic, up to 0.5 mm. long, 2–3 to each flower, with few irritant hairs; pedicel to 1 mm. long, articulated at the apex, glabrescent. *Female flower* pedicellate; perianth with 4 free tepals, the two lateral tepals ca. 0.8 mm. long and ca. 0.4 mm. broad, almost symmetrically ovate, enclosing the ovary, with 2–4 irritant hairs on the midrib, with elongated cystoliths; the dorsal one ca. 0.4 mm. long, ca. 0.2 mm. broad, fairly strongly geniculate, with long irritant hairs; the ventral ca. 0.2 mm. long, 0.1 mm. broad, lightly pubescent; ovary ca. 0.4 mm. long, ca. 0.3 mm. broad, slightly asymmetrically ovoid, stigma linear, unbranched, bent, ca. 0.5 mm. long; interfloral bracts to 0.4 mm. long, narrowly ovate, ca. 2 to each flower; pedicel ca. 0.4 mm. long, slightly winged laterally, glabrescent. *Achene* ca. 1.5 mm. long, ca. 1.2 mm. broad, stipitate, with stipe to 0.2 mm. long, on gynophore ca. 0.2 mm. long and broad, ovoid, without wing, on each lateral side a slightly raised ovate ridge enclosing a warted depression, with the lateral tepals at the base and displaced to one side, reflexed; pedicel to 3.5 mm. long, strongly winged laterally at the apex, glabrous; dispersed free from the perianth.

This rare species, confined to the limestones in the countries enumerated, bears some superficial resemblance to *L. aestuans* of sect. *Fleurya*. Gagnepain's comment that this is related to *Fleurya cordata* is therefore not surprising. In my preliminary list in 1965, this was erroneously referred to sect. *Fleurya* to which it does not belong. The species closest to this is *L. violacea* (see notes there).

The specific epithet *disepala* is a misnomer. The female perianth has 4-tepals, not 2; but as in the other species, the medial ones are so small that they are not readily visible to the hurried observer.

Thailand:—Loei: Pha Nuk Khao: *Shimizu et al. T.8702*, Sept. 1967 (SING).—Raohasima: Pak Chawng: *Smitinand 4836*, Sept. 1958 (BKF).—Saraburi: Mak Lek: *Smitinand & Sleumer 1324*, Oct. 1963 (L & SING).

CAMBODIA:—Mt. Kereer: *Pierre 4655*, April 1870 (type of *F. disepala*: A & P).

SOUTH VIETNAM:—Cochinchina: *Pierre 4806* (A & P).

**(5) *Laportea violacea*** Gagn. in Bull. Soc. Bot. Fr. 75: 4 (1928). —  
*L. vitifolia* Hand.-Mazz. Symb. Sinic. 7: 117 (1929).

*Diagnosis*: Monoecious herb or subshrub less than 2 metres; the lamina broad ovate, 6–12 cm. long, truncate at the base; the male flowers sessile, 5-merous, with non-corniculate tepals.

*Distribution*: China, Vietnam (North & South) & Thailand.

Monoecious herb or subshrub, usually less than 2 m. high. *Stem* woody at the base, well branched, glabrous to glabrescent, irritant hairs often absent, without glandular hairs; petiolar scars conspicuous, stipular scars not so. *Lamina* 6–12 cm. long, 4–10 cm. broad, broadly ovate, chartaceous to sub-coriaceous, without glandular hairs; irritant hairs of both surfaces short, appressed and dispersed, very rarely dense; cystoliths of both surfaces punctiform; base usually truncate, smooth, rarely slightly cordate; apex acuminate, usually sharply, ca. 1 cm. long; margin serrate, teeth to 0.4 cm. long, with base to 0.6 cm. broad; lateral veins 4–5 pairs, prominent, the basal pair most prominent and reaching to more than half the length of the lamina; intercostals rather straight and prominent. *Petiole* (3–) 6–9 cm. long, well covered with minute irritant hairs. *Stipule* to 0.2 cm. long, connate, intrapetiolar, bifid, the two tips very short, narrow ovate, chartaceous, light pubescent. *Inflorescence* unisexual, paniculate, fairly well branched, axillary, solitary, with minute peduncular bracts, peduncle densely covered with short irritant hairs; the male up to 6 cm. long, ca. 3 cm. broad, usually much smaller, mainly at the lower axils; the female 15–20 (–30) cm. long; 5–8 cm. broad, usually at the upper axils or subterminal; the male generally much smaller than the female. *Male flower* sessile to subsessile; perianth ca. 1 mm. long and broad, densely covered with short irritant hairs; tepals 5, non-corniculate, cymbiform; stamens 5, with reflexed filaments to 1.5 mm. long; pistillode ca. 0.2 mm. long and broad, obpyramidal; interfloral bracts ca. 0.2 mm. long and broad, 4–5 to each flower, densely covered with short irritant hairs. *Female flower* pedicellate; perianth with 4 free tepals covered with elongated cystoliths; the two lateral tepals to 0.8 mm. long, ca. 0.4 mm. broad, almost enclosing the ovary, with a few short irritant hairs, otherwise glabrous, the dorsal one ca. 0.2 mm. long, slightly geniculate, with a few irritant hairs, the ventral ca. 0.3 mm. long, glabrous; ovary ca. 0.8 mm. long, ca. 0.4 mm. broad, ellipsoid; stigma linear, unbranched, reflexed, up to 2.5 mm. long; interfloral bracts to 0.3

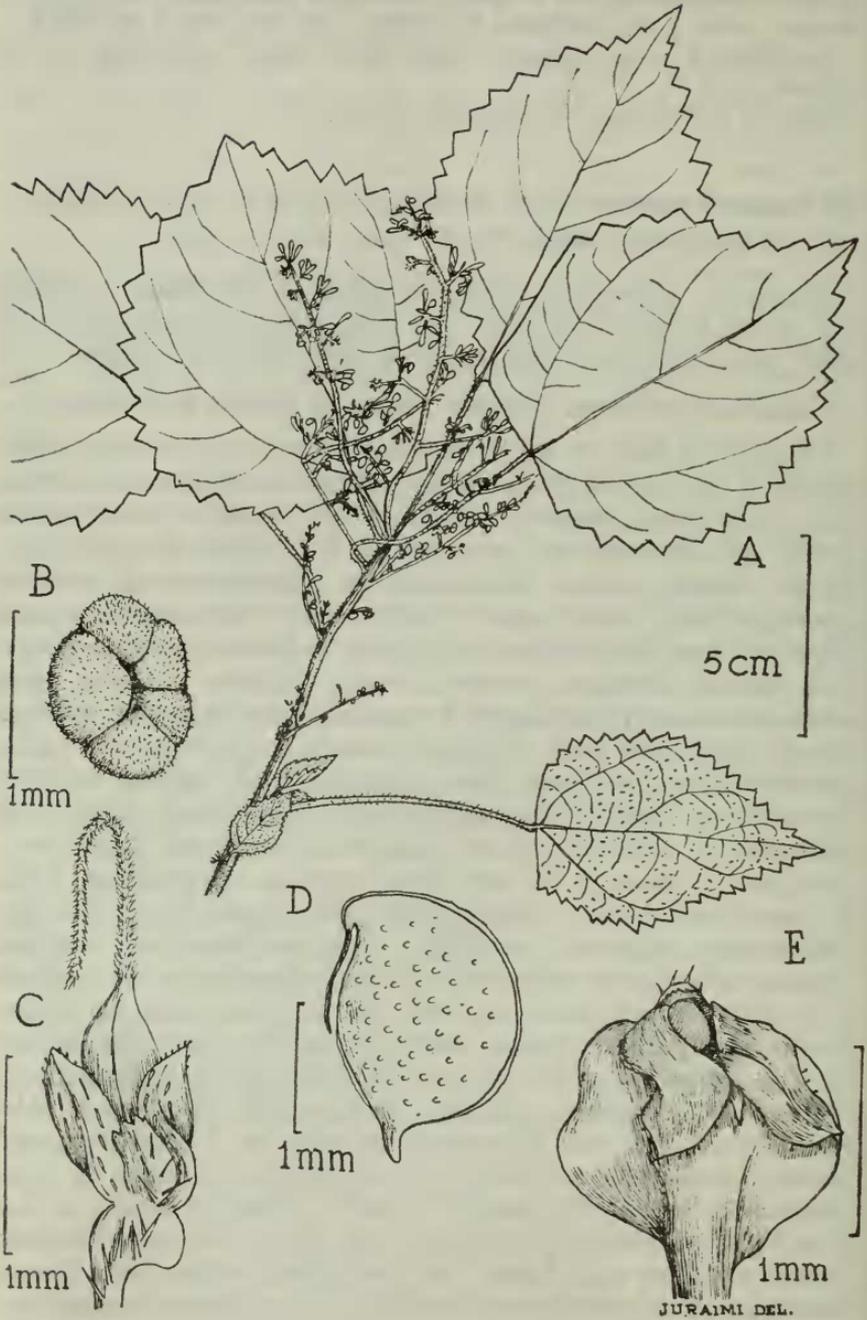


Fig. 5. *L. violacea*: A, twig; B, male flower; C, female flower; D, achene; E, pedicel.

mm. long and broad, 3–5 to each flower, often with irritant hairs; pedicel to 0.4 mm. long, winged laterally, somewhat glabrous. *Achene* ca. 2 mm. long, ca. 1.5 mm. broad, stipitate, stipe ca. 0.4 mm. long, on gynophore ca. 0.2 mm. long and broad, asymmetrically ellipsoid, the lateral sides warted, often raised, surrounded by a very narrow wing, greatly reflexed; pedicel up to 6 mm. long, strongly winged laterally, glabrous; dispersed free from the perianth.

This species has quite a lot in common with the preceding one with which it is obviously closely related. Both have somewhat the same habit of growth, shape of lamina and inflorescence and are both found in the same habitat. They are, however, easily told apart as in this species the lamina base is truncate, the male flowers 5-merous and the achene without a depression on the lateral sides.

CHINA:—Lungchow: Pan Wang Hills: *Morse* 218 (type of *L. vitifolia*: K).—Kwangsi Prov.: Lan Lon: *Ching* 6640, Aug. 1928 (NY).

VIETNAM:—Tonkin: *Lecomte & Finet* 260 (P); *Bon* 2269 (lectotype of *L. violacea*: P).—Annam: *Bon* 5724 (P).

THHAILAND:—Chumphae: *Smitinand* 4910, Nov. 1958 (BKF); *Sorensen et al.* 6103, Feb. 1958 (SING).

(6) *Laportea amberana* (Baker) Leandri in *Ann. Mus. Col. Mars.* ser. 6. 7–8: 18 (1950) et in *Humbert, Fl. Madagascar*, 56: 11. fig. 2 (1965); Chew in *Gard. Bull. Sing.* 21: 198 (1965). — *Urera amberana* Baker in *J. Bot.* 20: 267 (1882). — *L. humbertii* Leandri in *op. cit.* 19 (1950) & 11 (1965); Chew in *op. cit.* 199 (1965). — *L. manombensis* Leandri in *op. cit.* 21 (1950); Chew in *op. cit.* 199 (1965).

*Diagnosis:* (a) monoecious shrubs with cordate, coarsely, irregularly and shallowly dentate lamina, (b) irritant hairs appressed, (c) male flowers dense with irritant hairs, sessile, 5-merous, with non-corniculate tepals, (d) female flowers pedicellate, with ribbed lateral tepals, (e) achenes almost circular, stipitate, on strongly winged pedicels to 10 mm. long.

*Distribution:* Madagascar (endemic!).

Monoecious shrubs to 1.5 metres high. *Twigs* somewhat thick, subglabrous. *Lamina* 12–20 cm. long, 9–18 cm. broad, very broad ovate, chartaceous, both surfaces well covered with appressed irritant hairs and punctiform cystoliths; base profound cordate, the two lobes sometimes touching; apex acuminate, acumen 1–1.5 cm. long; margin coarsely, irregularly and shallowly dentate, teeth at most 1 cm. long, 0.5 cm. broad at the base; lateral veins 5–6 pairs, the basal pair very prominent, reaching to half the length of the lamina; intercostals numerous, somewhat anastomosing, rather faint. *Petioles* to 10 cm. long, lightly covered with appressed irritant hairs. *Stipules* less than 5 mm. long, caducous. *Inflorescences* unisexual, paniculate with very short lateral branches, axillary, usually in the upper axils; peduncle dense with somewhat erect irritant hairs. *Male flowers* sessile; perianth ca. 2 mm. long and broad, dense with irritant hairs, with 5 non-corniculate tepals, 5

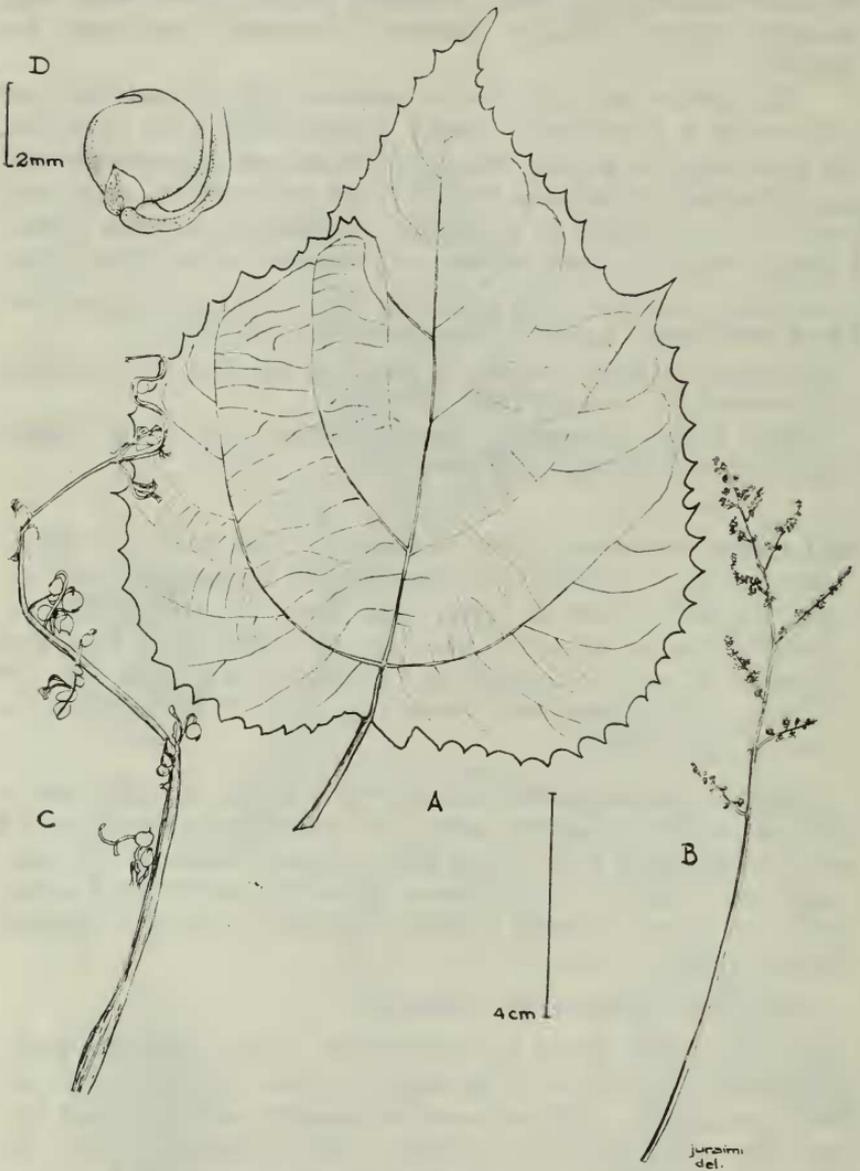


Fig. 6. *L. amberana*: A, leaf; B, male inflorescence; C, female inflorescence; D, achene with pedicel.

stamens on reflexed filaments; pistillode small. *Female flowers* pedicellate; the perianth 4-tepalled covered with irritant hairs, the laterals ca. 1 mm. long, 0.5 mm. broad, ribbed in the centre, enclosing the ovary, the dorsal one ca. 0.5 mm. long, slightly geniculate and the ventral ca. 0.6 mm. long; ovary ca. 1 mm. long, ellipsoid; stigma linear, ca. 0.75 mm. long, simple, reflexed; pedicel ca. 1 mm. long, slightly winged laterally, dense with irritant hairs. *Achenes* ca. 3 mm. long and broad, almost circular, stipitate, with stipe to 0.75 mm. long, on a very short gynophore, lateral sides minutely tuberculate, with the tepals covering the lower portion of the achene, greatly reflexed; pedicel to 10 mm. long, strongly winged laterally especially at the apex, well armed with irritant hairs; dispersed free from the perianth.

I do not agree with Leandri that *L. humbertii* is distinct from this species. The differences pointed out by him are, in my opinion (when viewed from a monographic angle), insufficient to warrant their separation. The species *L. manombensis* was reduced by Leandri to this in 1965 but the name was inadvertently omitted from the synonymy.

This and the following three form a related group of species entirely endemic in Madagascar. Though they differ from each other rather conspicuously in vegetative characters, they possess many other fundamental characters in common. Their female inflorescences, for instance, are usually much longer than the leaves and are furnished with rather stout peduncles. Their closest ally outside Madagascar is perhaps *L. alatipes* of East Africa with which this group is linked by *L. weddellii*.

*L. amberana* grows in rather dry forests on sandstones or limestones. Its specific epithet is a direct derivation from the Madagascan native name "amberana".

MADAGASCAR:—West: Manombo: *Humbert 19991*, Jan. 1947 (type of *L. manombensis*: P). Analavelono: *Humbert 14234*, March 1934 (type of *L. humbertii*: P & SING).—Centre: Betsileo: *Baron 321* (type of *L. amberana*: P & SING).

**(7) *Laportea septentrionalis*** Leandri in *op. cit.* 19 (1950) et 12 (1965); Chew in *op. cit.* 199 (1965).

*Diagnosis*: It distinguishes itself thus (a) herbs with very few, small, cordate, irregularly and coarsely-toothed leaves, (b) both surfaces of the lamina densely covered with irritant hairs and punctiform cystoliths, (c) inflorescence about 3 times as long as leaves. (d) stigma about 3 times as long as flower.

*Distribution*: Madagascar (endemic!).

Herbs less than 50 cm. high with few leaves. *Lamina* ca. 5 cm. long and broad, very broad ovate, chartaceous, both surfaces dense with appressed irritant hairs and punctiform cystoliths; base cordate; apex acute; margin irregularly, coarsely and bluntly dentate,

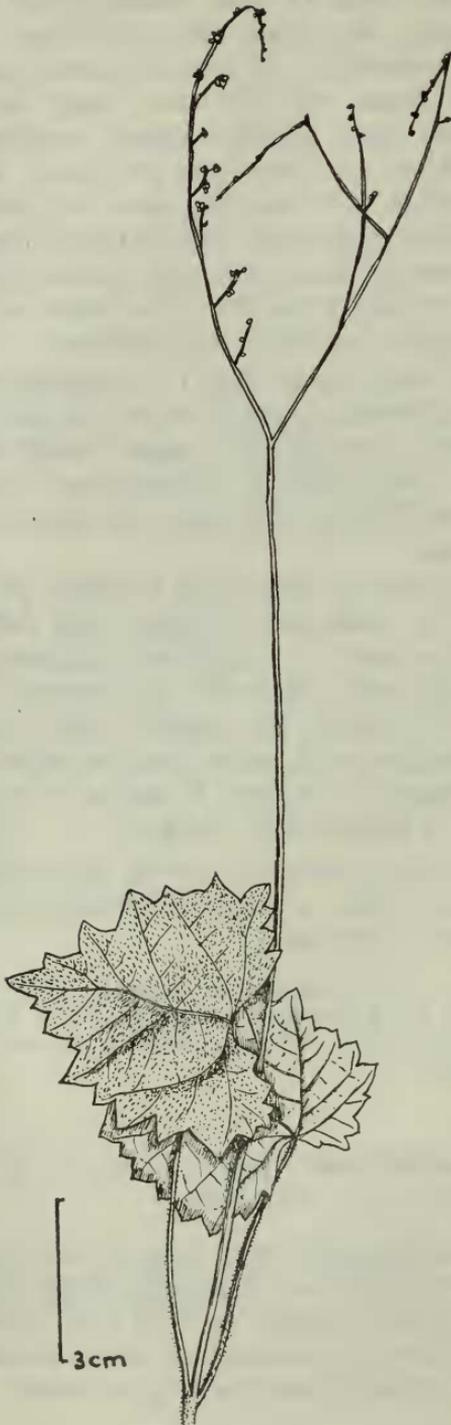


Fig. 7. *L. septentrionalis*: fruiting twig.

teeth at most 3 mm. long, 5 mm. broad; lateral veins ca. 4 pairs, the basal pair more prominent, reaching to more than half the length of lamina; intercostals anastomosing, faint. *Petioles* to 10 cm. long, well covered with appressed irritant hairs. *Stipules* membranous, caducous. *Inflorescences* unisexual, paniculate, branched weakly near the apex, axillary, 15 to 25 cm. long, peduncle well covered with minute irritant hairs. *Male flowers* sessile, to 2 mm. long and broad, with irritant hairs, with 5 non-corniculate tepals and 5 stamens. *Female flowers* pedicellate; stigma filiform to 4 mm. long, longer than ovary. *Achenes* ovate, to orbicular, flattened, ca. 2.5 mm. long, warted on broadly winged pedicels 6–7 mm. long.

This species comes very near to *L. humbertii* (= *L. amberana*) in lamina shape, venation and even dentition of the margin. Their female inflorescences are also somewhat similar in shape. They differ, however, in the habit of growth, lamina size and the number of achenes in the inflorescence.

It is recorded to be a very rare species of limestones.

MADAGASCAR:—Diego-Suarez Prov.: Ankarana: *Humbert* 19004, Dec. 1937–Jan. 1938 (holotype in P).

**(8) *Laportea perrieri*** Leandri in Ann. Mus. Col. Mars. ser. 6. 7–8: 20 (1950) et in Humbert, Fl. Madagascar, 56: 12 (1965); Chew in Gard. Bull. Sing. 21: 199 (1965).

*Diagnosis:* (a) monoecious shrubs with cordate, very profoundly dentate lamina, (b) irritant hairs minute, appressed, (c) inflorescences unisexual, branched racemes (d) male flowers subsessile, 5-merous, with non-corniculate tepals.

*Distribution:* Madagascar (endemic!).

Monoecious shrubs to 3 metres high. *Twigs* thick and fleshy, well armed with short irritant hairs. *Lamina* to 20–65 cm. long and broad, somewhat circular, chartaceous, with short appressed irritant hairs mainly on the lower surface and punctiform cystoliths mainly on the upper; base cordate; apex long acuminate, acumen to 6 cm. long; margin very profoundly dentate, teeth 7–20 cm. long, 3–10 cm. broad at the base; lateral veins 4–5 pairs, the basal pair most prominent, rising to about half the length of the lamina; intercostals numerous, rather faint. *Petioles* 20–60 cm. long, dense with short appressed irritant hairs. *Stipules* to 5 mm. long. *Inflorescences* unisexual, paniculate, axillary, solitary, rarely paired; the females in the upper axils, the males in the lower, both wide-spreading and long; peduncle well covered with short appressed irritant hairs. *Male flowers* subsessile; perianth ca. 2 mm. long and broad, lightly covered with short appressed irritant hairs and punctiform cystoliths, with 5 non-corniculate tepals, 5 stamens on

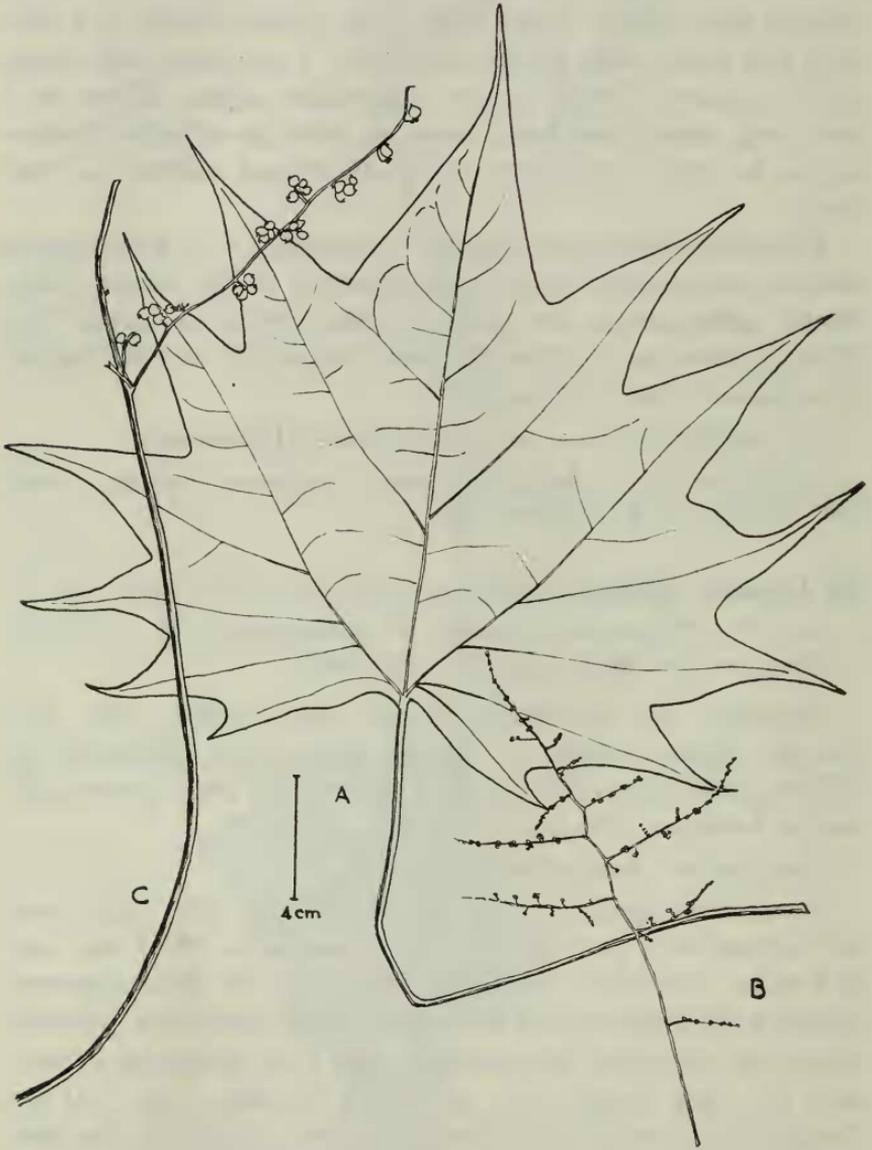


Fig. 8. *L. perrieri*: A, leaf; B, male inflorescence; C, female inflorescence.

slightly reflexed filaments; pistillode small, ca. 1 mm. long, obconical; interfloral bracts minute; pedicel extremely short. *Female flowers* pedicellate; the perianth 4-tepalled, the laterals ca. 0.75 mm. long, ca. 0.5 mm. broad, almost enclosing the ovary, with few erect irritant hairs, the dorsal one ca. 0.4 mm. long, geniculate and the ventral ca. 0.3 mm. long; ovary ca. 0.75 mm. long, 0.5 mm. broad, ovoid; stigma linear, ca. 0.75 mm. long, simple, reflexed; interfloral bracts minute; pedicel ca. 0.75 mm. long, winged laterally, with erect fairly long irritant hairs. *Achenes* ca. 3 (–5) mm. long, 3–4 mm. broad, often asymmetrically elliptic, stipitate, with stipe to ca. 0.5 mm. long, on a very short gynophore, lateral sides very minutely tuberculate with the tepals covering the stipe, greatly reflexed; pedicel to 4 mm. long, strongly winged laterally, well armed with long erect irritant hairs; dispersed free from the perianth.

Related to *L. amberana* (see notes there).

MADAGASCAR:—near Marovato: *G. Cours 5449*, Jan. 1960 (K & P).  
— Namoroka (Ambongo): *Perrier de la Bathie 475* (type: K & P).

(9) *Laportea weddellii* Leandri in *op. cit.* 22 (1950) et 14 (1965);  
Chew in *op. cit.* 199 (1965).

*Diagnosis:* (a) monoecious shrubs to 1.5 metres, (b) lamina longer than petioles, elliptic to slightly ovate, with erect irritant hairs, (c) teeth of lamina ca. 7–8 mm. long & broad, (d) female inflorescences slightly longer than lamina, (e) stigma 3–4 mm. long.

*Distribution:* Madagascar (endemic!).

Monoecious shrubs 1–5 metres high. *Twigs* bright red, with leaves crowded near the apices. *Lamina* 10–15 cm. long, 6–7 cm. broad, elliptic to slightly ovate, chartaceous, subglabrous on both surfaces, sparse with erect irritant hairs; base truncate to rounded; apex shortly acuminate; margin grossly dentate, teeth ca. 7–8 mm. long and broad at the base; lateral veins 4 pairs, rather prominent, the basal pair reaching to half the length of lamina. *Petioles* 5–6 cm. long, well armed with erect irritant hairs to 2 mm. long. *Stipules* minute, early caducous. *Inflorescences* unisexual, paniculate, to 15–20 cm. long, axillary, the females slightly larger than the males. *Male flowers* subsessile, ca. 2 mm. long and broad. *Female flowers* with small lateral tepals to 0.5 mm. long, on pedicels 5–6 mm. long; stigma linear, 3–4 mm. long. *Achene* 3–4 mm. long, 2.5–3 mm. broad.

This description is based on that of Leandri as I have seen only a single leaf of the only collection known of this species. As in *L. septentrionalis* numerous floral details are not available due to paucity of collections.

MADAGASCAR:—Manambolo Valley: *Humbert 13221* (holotype in P).

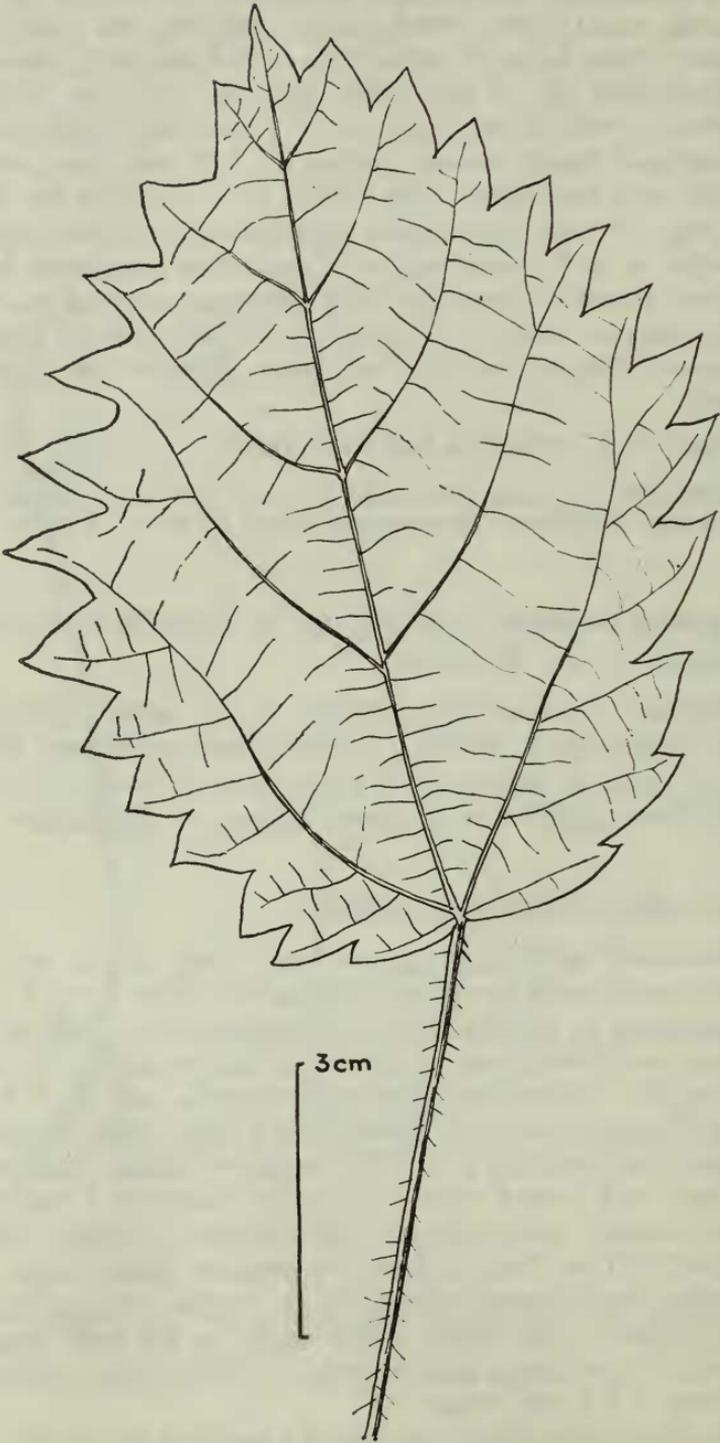


Fig. 9. *L. weddellii*: a leaf.

(10) *Laportea decumana* (Roxb.) Wedd. in Arch. Mus. Hist. Nat. Paris 9: 127 (1856) et in DC. Prodr. 16 (1): 80 (1869). — *Urtica decumana* Rumph. Herb. Amb. 6: 47, tab. 20, fig. 1 (1750), *ante Linn.*; Roxb. Fl. Ind. 3: 587 (1832). — *U. rumphii* Kostel. in Allg. Med. Pharm. Fl. 2: 400 (1833). — *Boehmeria macrothyrsa* Miq. in Zoll. Syst. Verz. Ind. 100, 103 (1854). — *Laportea armata* Warb. in Bot. Jahrb. 13: 293 (1891). — *Urticastrum decumanum* (Roxb.) O.K. *op. cit.* 635 (1891). — *Laportea pedunculata* K. Sch. & Laut. Fl. Deutsch. Sudsee 290 (1901). — *L. humilis* Laut. in K. Sch. & Laut. Nachtr. Fl. Deutsch. Sud. 251 (1905).

*Diagnosis:* Easily distinguished thus: (a) perennial shrubs, subshrubs or tall herbs, (b) leaves rugose, dense with long irritant hairs young ones dense woolly, (c) margin of lamina serrulate to denticulate; (d) stipules to 2 cm. long, subcoriaceous, lightly bifid, (e) stigma to 3 mm. long, (f) male interfloral bracts longer than male flowers.

*Distribution:* South Borneo, Celebes to New Guinea.

Monoecious perennial herbs, subshrubs or shrubs to 2 m. high. *Stem* woody, wood soft, brittle, well branched, densely armed with long rigid irritant hairs, especially at the apices, without glandular hairs; stipular and petiolar scars fairly conspicuous. *Lamina* (17-) 20-30 (-35) cm. long, (6-) 12-18 cm. broad, ovate, rhombic to truncate, rarely elliptic, subcoriaceous, usually strongly rugose, dense woolly, especially on the lower surface of young leaves, usually light pubescent to almost glabrous on the upper surface; stiff long irritant hairs present on both surfaces, more on the lower; cystoliths of the upper surface minute punctiform, those of the lower surface elongated; base round to cordate; apex long acuminate, often sharply, up to 2 cm. long; margin serrulate to denticulate, teeth rarely exceed 0.3 cm. long with 0.3 cm. broad base, very often only 0.1 cm. long; lateral veins 7-9 (-11) pairs, prominent, basal pair reaching to a third the length of lamina, usually less prominent than the others; intercostals numerous, slightly straight to anastomosing, prominent. *Petioles* (2-) 5-8 (-10) cm. long, usually with long rigid irritant hairs, young ones often dense woolly. *Stipules* to 2 cm. long, connate, intrapetiolar, very slightly bifid at the apex, cymbiform, chartaceous to subcoriaceous, with short irritant hairs, quite persistent. *Inflorescences* unisexual, paniculate, well branched, well branched, axillary, usually solitary, without bulbils, with peduncular bracts to 0.5 cm. long, with peduncle usually densely covered with irritant hairs; the male (10-) 16-20 (-25) cm. long, (4-) 6-10 (-15) cm. broad, usually in the lower axils; female (20-) 30-40 (-55) cm. long, (4-) 8-15 (-20) cm. broad, usually in the upper axils or subterminal, the female usually larger than the male. *Male flowers* pedicellate; perianth to 2 mm. long and broad, with long irritant hairs at the apex, otherwise glabrous, with elongated cystoliths; tepals 4, non-corniculate, cymbiform; stamens 4.

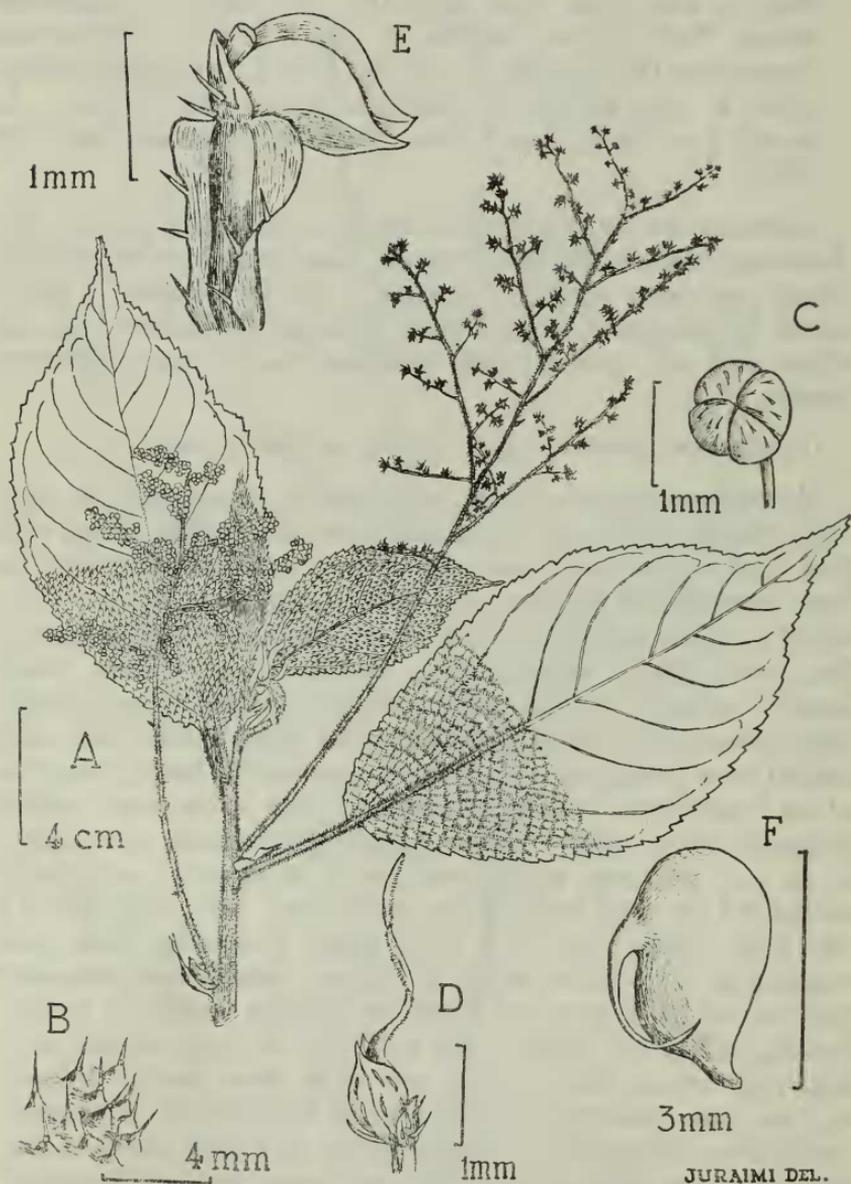


Fig. 10. *L. decumana*: A, twig; B, leaf surface; C, male flower; D, female flower; E, pedicel; F, achene.

with reflexed filaments to 2 mm. long; pistillode ca. 0.75 mm. long, ca. 0.5 mm. broad at the apex, obpyramidal; interflora bracts narrow lanceolate, almost as long as flower, sparsely covered with irritant hairs; pedicel to 2 mm. long, articulated near the apex, glabrous. *Female flowers* pedicellate; perianth with 4 free tepals, the two lateral tepals ca. 1 mm. long and 0.75 mm. broad, slightly asymmetrical, usually enclosing the ovary, with 2 to 4 long irritant hairs at the base, with elongated cystoliths; the dorsal one ca. 0.75 mm. long, ca. 0.3 mm. broad, often slightly geniculate, usually fully armed with long irritant hairs; the ventral ca. 0.5 mm. long, narrow, almost glabrous; ovary ca. 1 mm. long, ca. 0.75 mm. broad, asymmetrically ovoid; stigma linear, unbranched, slightly bent, to 3 mm. long; interfloral bracts to 1 mm. long, narrow ovate to lanceolate, numerous; pedicel ca. 0.5 mm. long, slightly winged laterally, usually with long irritant hairs. *Achenes* to 2.5 mm. long and broad, stipitate, with stipe to 0.75 mm. long, on gynophore to 0.75 mm. long, pyriform, smooth, without wing, ridge nor depression, with lateral tepals at the base, greatly reflexed; pedicel to 1.5 mm. long, slightly to strongly winged laterally, with long irritant hairs at the margin; dispersed free from the perianth.

I find no difficulty in distinguishing this species from the others in the genus. The habit of growth, leaf-form, texture and vestiture and numerous other characters make this easily the most distinctive.

Its affinity is not entirely clear to me. On growth habit, I would consider this a close relative of the Madagascan group of species! I see in *L. decumana* a link, though not a very strong one, between this genus and *Dendrocnicide*. Its stipules are certainly rather similar in size and texture to those of the latter genus.

Winkler's concept of this species is too restricted. Having examined a vast quantity of collections from various locations, I decide to stretch it to cover not only *L. humilis* but also *B. macrothyrsa* which was described from a plant introduced into cultivation in Java from Amboina.

I select as a neotype for this species a collection of Roxburgh, reference Wallich Cat. 4620 in Kew Herbarium.

BORNEO:—South-East: sine loc.: *Korthals s.n.* (L. herb. 906-171-31 & 908-188-3265).

CELEBES:—sine loc.: *de Vriese s.n.* (L. herb. 908-188-3268 & 3278).

MOLUCCAS:—Amboina: *Robinson, Pl. Rumph. Amb. 316*, July–Nov. 1913 (BO, K, L & US).—Ceram: *Eyma 1804*, Oct. 1937 (BO, K, L, PNH & SING).—Tanimbar Islands: *Borssum-Waalkes 3366*, April 1956 (L).

NEW GUINEA:—North-East: Morobe Distr.: *Womersley & van Royen 5884*, June 1954 (A, BRI, L & LAE). Sattelberg: *Warburg 20764*, April 1889 (type of *L. armata*: BM).—West Manokwari: *Kostermans 2703* Aug. 1948 (BO & L).—Papua: Boridi: *Carr 12995 & 13012*, Oct. 1935 (A, BM, K & L).

Cultivated:—India: *Roxburgh, Wall. Cat. 4620* (neotype in K).—Java: *Zollinger HZ. 1149* (type of *B. macrothyrsa*: U).

- (11) *Laportea macrostachya* (Maxim.) Ohwi in J. Jap. Bot. 12: 331 (1936). — *Sceptrocnide macrostachya* Maxim. in Bull. Acad. Petersb. 22: 238 (1877). — *L. grossedentata* Wright in J. Linn. Soc. 26: 474 (1899). — *L. giraldiana* Pritz. in Bot. Jahrb. 29: 301 (1901). — *L. longispica* Pampan. in Nuov. G. Bot. Ital. 17: 256 (1901). — *L. forrestii* Diels in Notes Bot. Gard. Edin. 5: 292 (1912).

*Diagnosis:* (a) lamina grossly dentate, strongly caudate, with the long tip arising from the broadly emarginate to truncate apex, (b) female inflorescences elongated, unbranched, (c) achenes smooth, without ridge nor wing, totally enclosed by the lateral tepals strongly ribbed on the outside.

*Distribution:* Japan, China and Burma.

Monoecious annual herbs, usually less than 2 m. high, occasionally with tuberous roots. *Stem* woody at the base, usually unbranched, often well armed with long mounted irritant hairs, especially at the nodes and apex, old parts usually glabrous, without glandular hairs; petiolar scars very prominent, stipular scars not so; rarely with woody bulbils at the leaf axils. *Lamina* (7-) 10-20 (-28) cm. long, (5-) 8-18 (-28) cm. broad, ovate, broadly to very broadly so, chartaceous, without glandular hairs; irritant hairs more on the lower than on the upper surface, frequently sparse on matured leaves; cystoliths very minutely punctiform, numerous on the upper surface, fewer on the lower surface; base cordate, often very broadly; apex broadly emarginate to truncate between the ultimate pair of teeth, surmounted by a narrowly ovate cauda to 8 cm. long constricted at the base; margin grossly dentate, teeth up to 3 cm. long, with base to 2 cm. broad, the cauda occasionally with serrate margin; lateral veins 4-5 pairs, very prominent, the basal pair reaching up to more than half the length of the lamina; intercostals numerous, straight to somewhat anastomosing, rather prominent. *Petioles* (4-) 7-15 (-18) cm. long, usually sparsely covered with mounted irritant hairs. *Stipules* to 0.4 cm long, connate, intrapetiolar, bifid, the two tips often as long as the lower connate part, often greatly split by the developing female inflorescence, triangular, chartaceous, glabrous, caducous. *Inflorescences* unisexual, axillary, solitary, very rarely with woody bulbils, with minute peduncular bracts; peduncle densely covered with very short irritant hairs as well as long mounted ones, especially when young; the male 7-16 cm. long, 4-8 cm. broad, paniculate, well branched, in the lower axils mainly; the female up to 32 cm. long, spike-like, with the flowers fasciculate at intervals along the usually unbranched peduncle, mainly in the upper axils or subterminal. *Male flowers* pedicellate; perianth ca. 1 mm. long and broad, with few to numerous short irritant hairs; tepals 5, non-corniculate, cymbiform; stamens 5, with reflexed filaments to 2 mm. long; pistillode ca. 0.4 mm. long and broad, obconical; interfloral bracts up to 4.0 mm. long, triangular, irregular in number; pedicel to 0.5 mm. long, articulated at about the middle, glabrous. *Female flowers* pedicellate; perianth with 4 free tepals; the two lateral

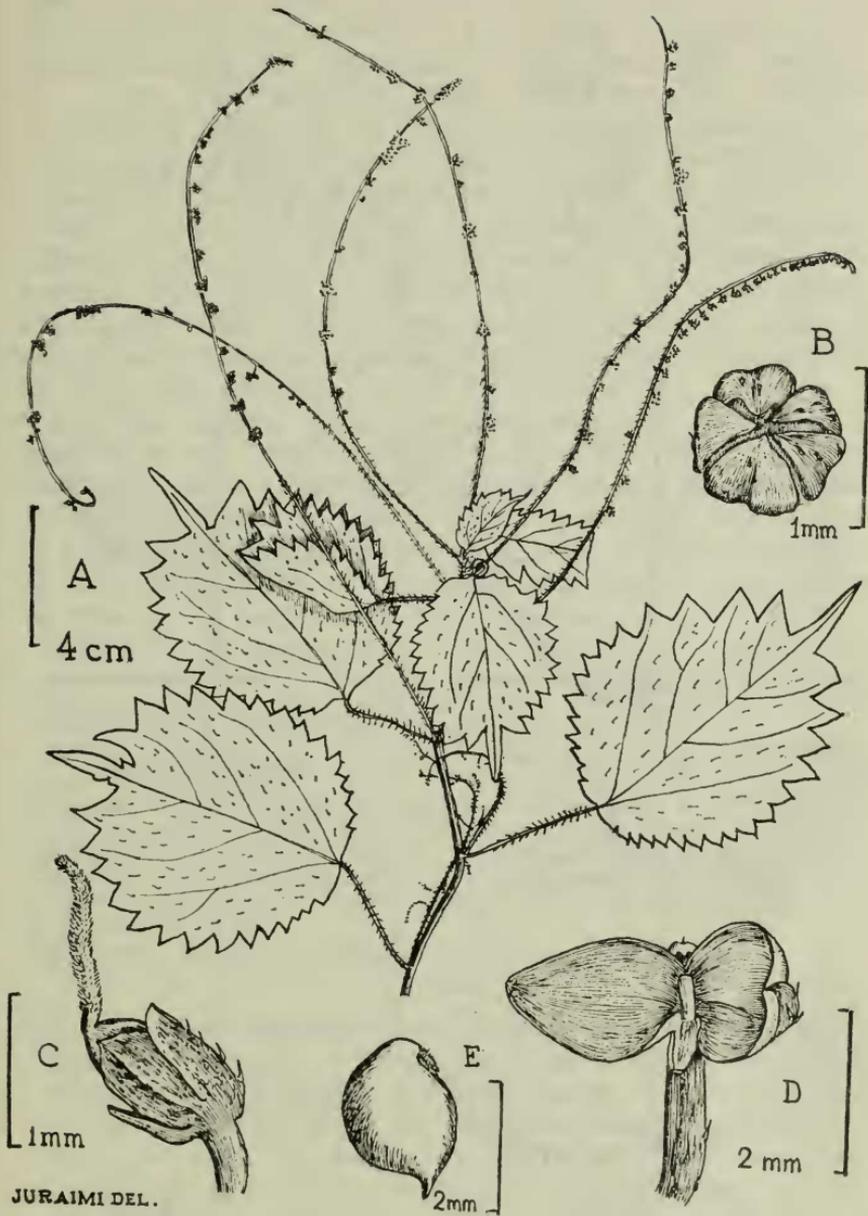


Fig. 11(a). *L. macrostachya*: A, twig; B, male flower; C, female flower; D, pedicel and perianth opened; E, achene.

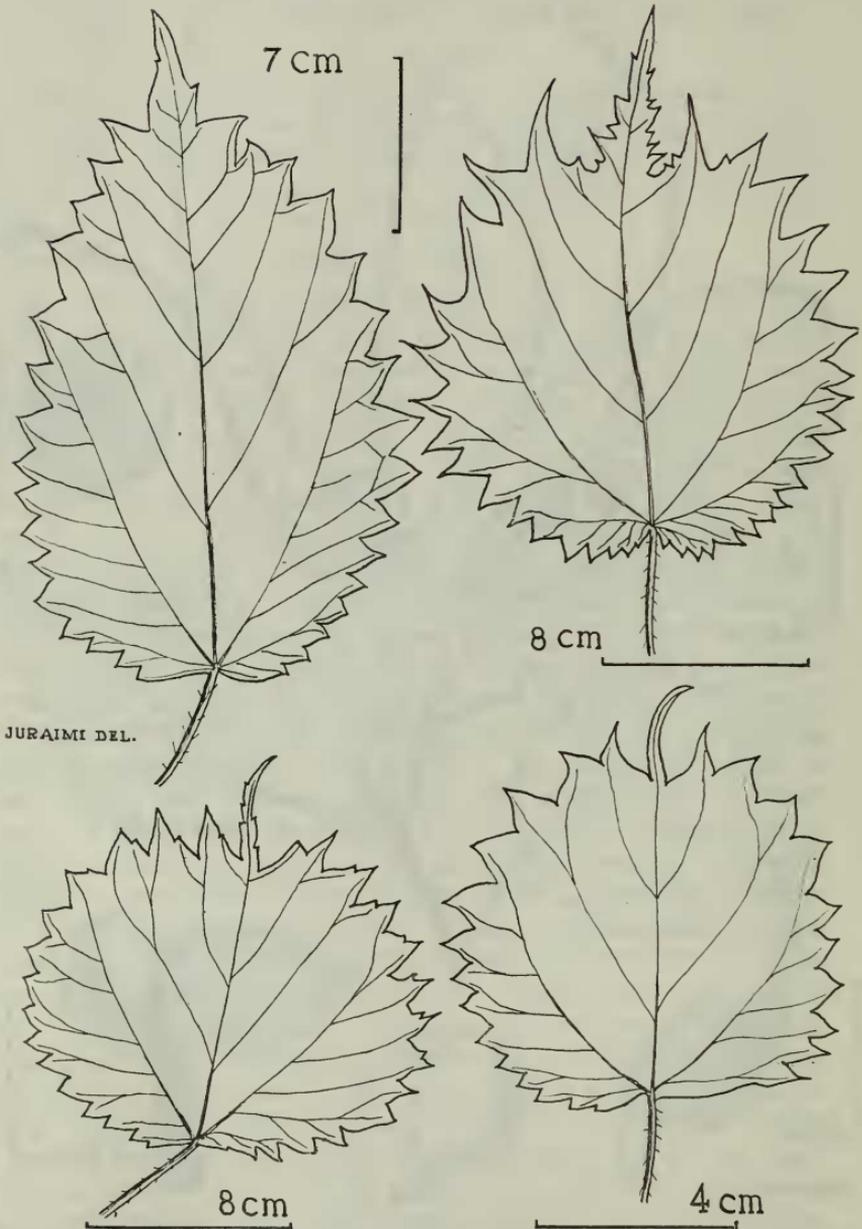


Fig. 11(b). *L. macrostachya*: four leaf-forms.

tepals to 0.8 mm. long and broad, very broadly ovate, cordate based, enclosing the ovary, sparse to dense with short irritant hairs especially on the prominent rib; the dorsal one to 0.6 mm. long, ca. 0.4 mm. broad, strongly geniculate, with numerous short irritant hairs; the ventral ca. 0.5 mm. long, ca. 0.4 mm. broad, slightly keeled; ovary ca. 0.8 mm. long, ca. 0.6 mm. broad, asymmetrically ovoid; stigma linear, unbranched, slightly reflexed, to 1.5 mm. long, interfloral bracts to 0.5 mm. long, irregular in number; pedicel to 0.6 mm. long, simple, pubescent only at the base. *Achenes* ca. 2 mm. long, ca. 1.5 mm. broad, stipitate; stipe ca. 0.4 mm. long, on gynophore to 0.5 mm. long, ca. 0.2 mm. broad; broadly asymmetrically ovoid, smooth, without wing, ridge nor depression, usually entirely enclosed by the lateral tepals, reflexed, often greatly so; pedicel up to 1.5 mm. long, simple, not winged, fairly densely covered with very short appressed irritant hairs; dispersed with the perianth and the greater portion of the pedicel attached.

The four species, noted in the synonymy above, are being assigned to this with confidence. I have seen their types and have found them to be mere individual variants of one species.

This is probably the linking species between the two sections of *Laportea*. In its habit of growth, it comes near to *L. bulbifera* of sect. *Laportea*; but it has female inflorescences very similar to those of *L. interrupta* of sect. *Fleurya*.

JAPAN:—Hakodate: Mohidji: *Maximowicz s.n.* (type of *S. macrostachya*: BM & K).—Hondo: Shinano Prov.: *Furuse 19740*, Sept. 1951 (A).—Honshu: Mt. Tanigawa: *Suzuki 398004*, July 1949 (K).—Yamagata Pref.: Atsumi village: *Walker 7356*, Sept. 1951 (US).

CHINA:—Hunan: Mt. Yun-schan: *Handel-Mazzetti 11,135*, July 1918 (C & US).—Hupei: Mt. Ku-tien: *Silvestri 410 & 410A*, July-Aug. 1906 (syntypes of *L. longispica*: FI); sine loc.: *Henry 6066 & 6077* (syntypes of *L. grossedentata*: BM, K & US).—Shansi: Ping Chan: *Serre A.531*, July 1929 (UPS).—Shensi: Kia-po: *Giraldi 1349* (type of *L. giraldiana*: FI).—Szechuan: Pao-hsing-hsien: *Chu 2927*, June 1936 (BM & E).—Yunnan: Valleys of Mekong & Yangtze: *Forrest 520*, Sept. 1904 (type of *L. forrestii*: K. & E).

BURMA:—Nam Tamai Valley: *Kingdon-Ward 13259* (BM).

- (12) *Laportea interrupta* (L.) Chew in *op. cit.* 200 (1965);  
 Letouzey in *op. cit.* — *Urtica interrupta* L. Sp. Pl. 985 (1753).  
 — *Boehmeria interrupta* (L.) Willd. Sp. Pl. 4 (1): 342 (1805).  
 — *U. javanica* Bl. Bijdr. 503 (1825). — *Fleurya spicata* Gaud.  
 in Freyc. Voy. Uraïne Bot. 497 (1830). — *F. glomerata* Gaud.  
 in *op. cit.* 498 (1830). — *B. spicata* (Gaud.) Endl. in Ann.  
 Wien Mus. 1: 165; 864 (1836). — *U. sessiliflora* Blco. Fl.  
 Filip. 696 (1837), non Sw. (1785). — *U. gaudichaudii* Steud.  
 Nom. Bot. ed. 2. 2: 734 (1841). — *U. spicigera* Steud. *op. cit.*  
 736 (1841). — *U. affinis* Hk. & W.-Arn. Bot. Beech. Voy. 69  
 (1841). — *B. javanica* (Bl.) Hassk. Cat. Hort. Bog. Alt. 79  
 (1844). — *U. capitata* Bocl. Fl. Filip. ed. 2: 483 (1845). —  
*U. lomatacarpa* Hochst. ex Steud. in Flora 33: 260 (1850). —  
*F. interrupta* (L.) R. Wight, Ic. 6: 10, tab. 1975 (1853). —  
*Schychowskia interrupta* (L.) Wight in Safford, Contr. U.S.  
 Nat. Herb. 9: 371 (1905).

*Diagnosis:* (a) female flowers with 3-fid stigmas, (b) inflorescences bisexual, the lateral branches greatly reduced with flowers fasciculate at intervals along the elongated peduncle.

*Distribution:* Portuguese Guinea (?), Congo, East and South Africa, Abyssinia, India, Ceylon, Japan, China through South-East Asia and Malesia to Queensland (Australia) and the Pacific Islands.

Monoecious annual herbs, 1 to 2 m. high. *Stem* woody at the base, with few to many branches, light pubescent, with irritant hairs towards the apex, without glandular hairs, green with reddish-chocolate streaks near the apex, reddish-chocolate at the base; stipular scars inconspicuous, petiolar scars conspicuous. *Lamina* (5-) 8-12 (-18) cm. long, (3-) 5-7 (-12) cm. broad, ovate to broadly ovate, chartaceous, without glandular hairs; irritant hairs of the upper surface short, appressed, scattered, not mounted, those of the lower surface mainly on the midrib and veins; cystoliths elongated, those of the upper surface scattered, those of the lower surface mainly along midrib, veins and veinlets; base obtuse, rounded, truncate to slightly cordate; apex acuminate, 1-1.5 cm. long; margin serrate, teeth ca. 0.5 cm. long, with base 0.5 cm. broad; lateral veins 3-6 pairs, prominent, the basal pair reaching to more than half the length of lamina; intercostals numerous, quite prominent, often straight. *Petiole* (3-) 5-8 (-12) cm. long, rather densely covered with elongated cystoliths, with evenly distributed irritant hairs, pubescent when young, later almost glabrous. *Stipules* 3-5 mm. long, connate, intrapetiolar, bifid, the two tips shorter than the hairs on the spines, otherwise glabrous. *Inflorescences* bisexual, paniculate, up to 30 cm. long, with flowers fasciculate at intervals along elongated peduncle consequent upon great reduction of the lateral peduncular branches, axillary, sometimes borne at the base of the stem just above soil level, solitary; peduncular bracts narrow triangular, ca. 1 mm. long, on the side of each floral agglomeration; peduncle very light pubescent to glabrous, very sparsely armed with irritant hairs. *Male flowers* pedicellate; perianth 1-1.5 mm. long and broad, with few irritant hairs at the apex; tepals 3 or 4, corniculate, triangular to cymbiform; stamens 3 or 4, with reflexed filaments ca. 1.5 mm. long; pistillode ca. 0.5 mm. long, as broad at the apex, obpyramidal; interfloral bracts lanceolate, ca. 1 mm. long, variable in number; pedicel to 1 mm. long, articulated near the apex, glabrous. *Female flowers* pedicellate; perianth with 4 free tepals, the two lateral tepals ca. 0.5 mm. long, almost enclosing the ovary, the dorsal and ventral ones ca. 0.3 mm. long, straight, slightly geniculate, often with few irritant hairs, otherwise glabrous; ovary ca. 0.75 mm. long, asymmetrically ovoid; stigma linear, trifid, greatly reflexed, the central branch to 0.5 mm. long, the lateral branches to 0.25 mm. long; interfloral bracts minute, numerous, narrowly lanceolate; pedicel to 0.5 mm. long, slightly winged dorsi-ventrally, articulated near the apex, with few irritant hairs at the apical half, otherwise glabrous. *Achenes* ca. 1.25 mm. long and broad,

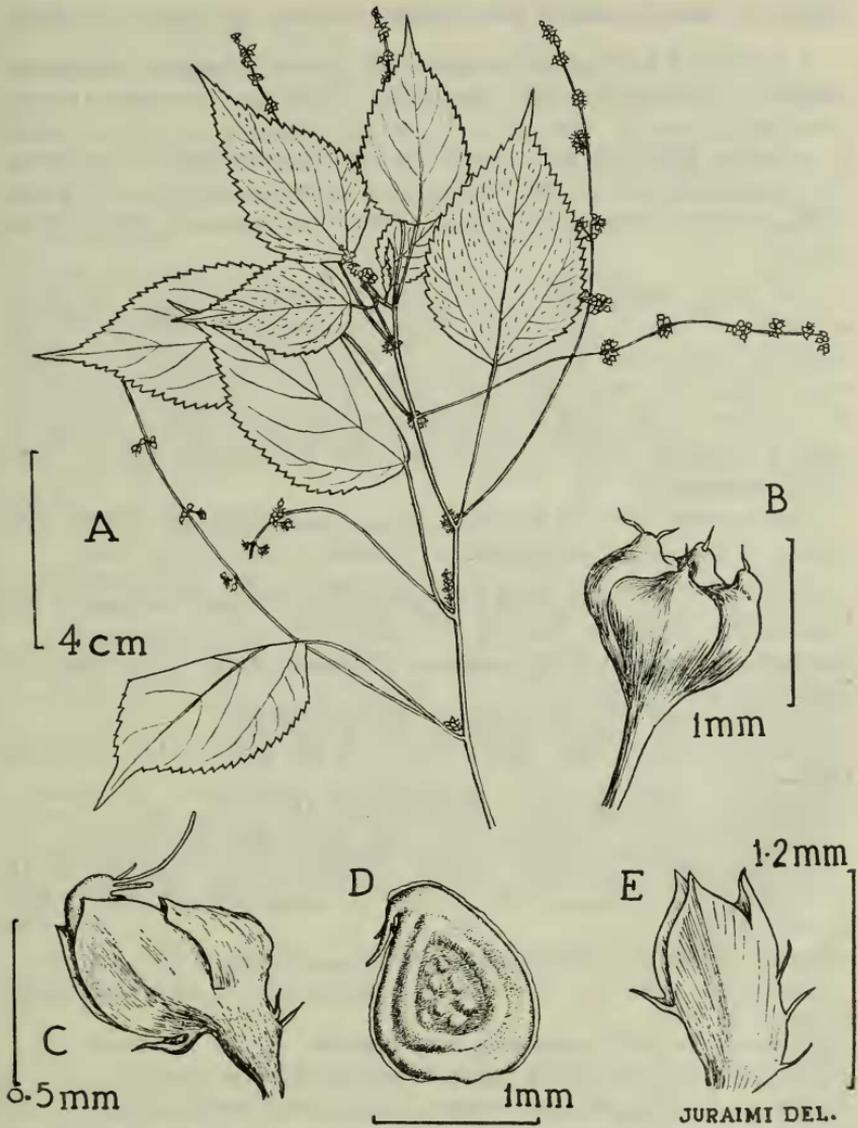


Fig. 12. *L. interrupta*: A, twig; B, male flower; C, female flower; D, achene; E, female perianth.

sessile, without gynophore, asymmetrically ovoid, completely surrounded by a narrow membranous wing, on each lateral side a triangular ridge enclosing a warty depression, the tepals forming a small cup at the base, reflexed; pedicel to 1.5 mm. long, slightly or not winged dorsio-ventrally, with few irritant hairs; dispersed with perianth and upper portion of pedicel attached.

A species of herbaceous weeds under partial shade in abandoned gardens, plantations and roadsides, this is the most widely distributed one in the genus. Yet, throughout its entire range it remains remarkably constant in its morphological attributes. No discontinuities of any taxonomic significance can be found between the various populations from the different parts of its range.

The only record from Portuguese Guinea cannot be taken seriously. There is no doubt that the specimen belongs to this species; but as the collection is a *mixtum compositum*, I doubt very much of our specimen belongs to the label attached. It is likely to be a Mozambique material inadvertently mounted with a Guinean label. I have not seen Letouzey's record from the Cameroun.

The nearest relative is no doubt *L. ovalifolia* of Africa with which it has many characters in common (see notes there).

The specimens cited here represent but a very small proportion of a large quantity of collections studied.

PORTUGUESE GUINEA:—Bissau: Pussube: *Santo* 2403 (*Sheet 1*), Sept. 1947 (LISC).

CONGO:—sine loc.: *Coomans s.n.*, March 1906 (Z).

TANGANYIKA:—Lake Nyasa: *Stolz* 727 (B, BM, C, G, K, S, SAM, UPS & Z).

KENYA:—Nyika Territory: *Wakefield s.n.* (K).

MOZAMBIQUE:—Tuhamitonga: *Torre* 4085, May 1942 (LISC).

SOUTH AFRICA:—Natal: Durban: *Schlechter* 2791, June 1893 (BM).

ABYSSINIA:—*Schimper* 1471 (type of *U. lomatarcarpa*: A, BM, G-DC, K, PRC & S).

INDIA:—sine loc.: *Wight herb.* 2680 (A, C, L, NY & S).

CEYLON:—sine loc.: *Hermann s.n.* (type of *U. interrupta*: herb. Hermann in BM).

JAPAN:—Tokyo: *Faurie* 6425, Aug. 1890 (K).

CHINA:—Yunnan: Che-li Hsien: *Wang* 77747, Aug. 1936 (A).

BURMA:—Golden-Valley: *Thein-Lwin* 67, Aug. 1947 (K).

THAILAND:—North Chiengmai: *Sorensen et al.* 4064, July 1958 (SING).

VIETNAM:—Hue: *Squires* 45 (BO, BRI, E, MEL & UC).

FORMOSA:—Bankinsing: *Henry* 386 (K & MO).

MALAYA:—Trengganu: *Yapp* 344, Oct. 1899 (CGE & K).

PHILIPPINES:—Mindanao: Butuan subprov.: *Weber* 1090 (A, F, NSW, UC & US).

BORNEO:—South-Borneo: Banjermassing: *Motley* 269 (CGE).

SUMATRA:—Bila: *Rahmat-si-Toroës* 2843 (MICH, NY, UC & US).

JAVA:—sine loc.: *Zollinger* 563 (L).—Bogor: unknown coll. herb. L.908-188-2807 (type of *U. javanica*).

LESSER SUNDA ISLANDS:—Bali: *van Steenis* 7743, April 1936 (A, BO & L).

CELEBES:—Menado: Kolonedale: *Eyma* 3418, Aug. 1938 (BO, L, PNH & U).

MOLUCCAS:—Pisang: *Gaudichaud s.n.* (types of *F. glomerata* & *F. spicata*: G).

NEW GUINEA:—North-East New Guinea: *Weinland* 381 (BO, BRI, L, NSW & WRSL).

BISMARCK ARCHIPELAGO:—New Britain: Talasea subdistrict: *White NGF. 10959*, April 1959 (LAE).

SOLOMON ISLANDS:—sine loc. *Milne* 473 (K).

QUEENSLAND (AUSTRALIA):—Baron River: *Bich s.n.* (NSW. 77914).

NEW HEBRIDES:—Malekula: Atchin: *Layard* 59 (NSW).

NEW CALEDONIA:—sine loc.: *Franc s.n.* (herb. US. 390576).

CAROLINE ISLANDS:—Ponape Isl.: Metaranium: *Kanehira* 789, Aug. 1929 (NY).

MARSHALL ISLANDS:—Jaluit: *Schnee s.n.* (NSW).

SAMOA:—Tau: *Wray-Harris* 2373–320 (BO, K & P).

FIJI:—Ovalau: Lovoni Village: *Smith* 7480 (US).

TONGA:—Tafahi: *Hurlimann* 561, Dec. 1951 (Z).

SOCIETY ISLANDS:—Tahiti: *Hillebrand* 162 (K).

COOK ISLANDS:—Rarotonga: *Cheeseman* 120.669 (K).

CORAL ISLANDS:—sine loc.: *Capt Beechy s.n.* (type of *U. affinis*: G & K).

HAWAII:—Honolulu: *Anderson s.n.* 1852 (S).

- (13) *Laportea ovalifolia* (Schumach.) Chew in *op. cit.* 201 (1965);  
 Letouzey in *op. cit.* 131 (1968). — *Haynea ovalifolia* Schumach.  
 Beskr. Guin. Pl. 406 (1827). — *Fleurya podocarpa* Wedd. in  
 DC. Prodr. 16 (1): 76 (1869). — *F. ovalifolia* (Schumach.)  
 Dandy in Andrews, Fl. Pl. Angl-Egypt. Sudan, 2: 277 (1952).

*Diagnosis:* (a) plants stoloniferous, (b) inflorescences often directly from stolons, (c) males long, with flowers glomerulate at intervals along the seemingly unbranched peduncle, (d) females very small and frail (e) achenes very large, rarely reflexed, often geocarpic.

*Distribution:* Sierra Leone, Liberia, Ivory Coast, Ghana, through equatorial Africa to East Africa.

Monoecious annual stoloniferous herbs, often repent; erect shoots up to 2 m. high. *Stem* slightly woody at the base, with few branches, densely to lightly covered with short often appressed irritant hairs, without glandular hairs; stipular scars inconspicuous, petiolar scars conspicuous. *Lamina* (3–) 8–10 (–13) cm. long, (2–) 4–6 (–8) cm. broad, ovate, chartaceous, without glandular hairs; irritant hairs of the upper surface short, scattered, sometimes absent, those of the lower surface on midrib and veins; cystoliths of the upper surface punctiform, scattered, those of the lower surface on veins; base usually rounded; apex sharp acuminate to slightly caudate, ca. 1 cm. long; margin crenate, dentate to serrate, teeth ca. 0.5 cm. long, with base ca. 0.5 cm. broad; lateral veins 4–7 pairs, prominent, the basal pair reaching up to more than half the length of lamina; intercostals numerous, straight. *Petioles* 5–10 (–16) cm. long, glabrous to lightly

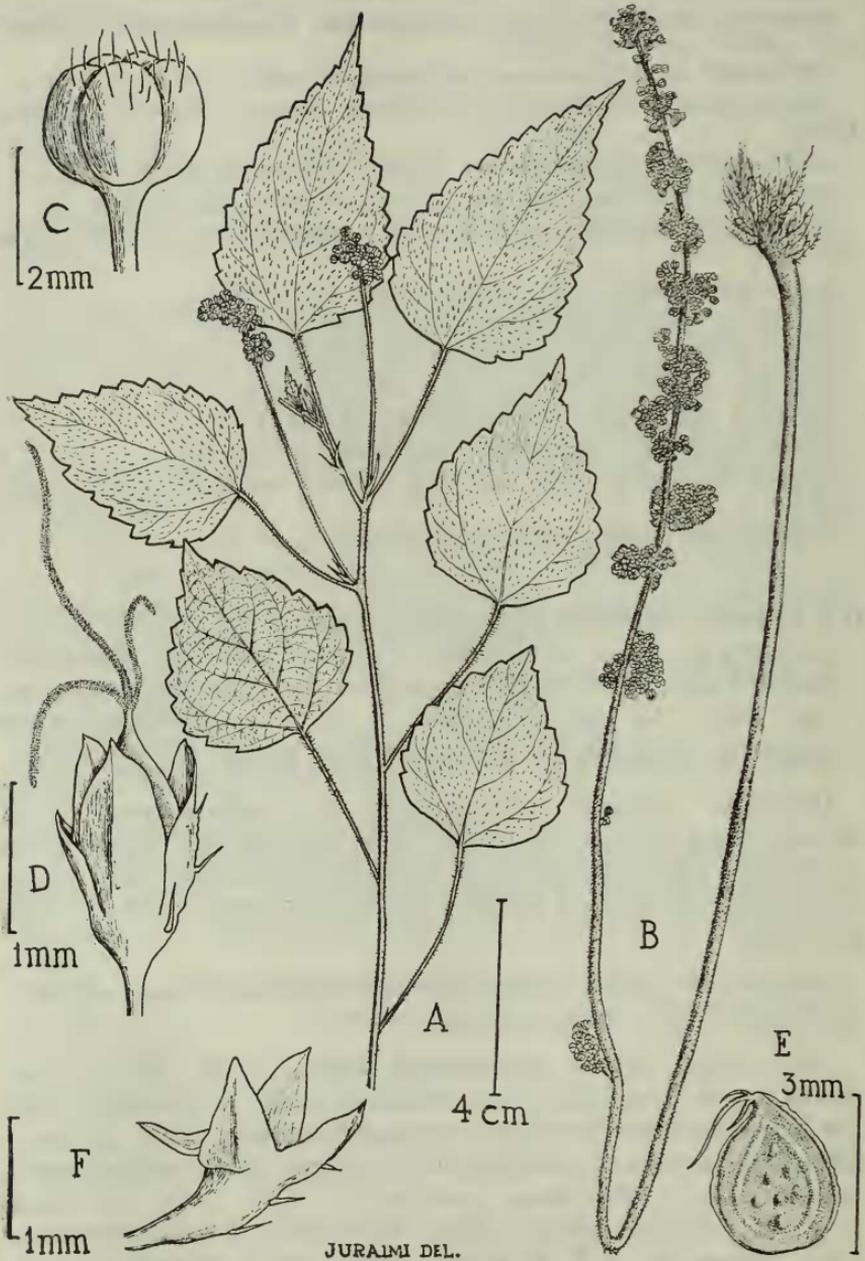


Fig. 13. *L. ovalifolia*: A, twig; B, male inflorescence; C, male flower; D, female flower; E, achene; F, female perianth.

covered with short appressed irritant hairs. *Stipules* usually 1 cm. long, connate, intrapetiolar, bifid, the two tips often as long as the connate part, triangular, chartaceous, with few appressed irritant hairs, otherwise glabrous. *Inflorescences* unisexual, the male paniculate, up to 50 cm. long, the lateral branches very greatly reduced with flowers fasciculate at intervals along seemingly unbranched peduncle, axillary, usually shooting from stolons, solitary, with minute caducous peduncular bracts; peduncle subglabrous to densely canescent, especially the floriferous part, with minute appressed irritant hairs; the female a simple raceme to a sparsely branched panicle, rarely longer than 5 cm., axillary, usually produced from stolons, solitary or paired, with peduncular bracts ca. 1 mm. long; peduncle thin and frail, glabrous to light pubescent, with very few irritant hairs. *Male flowers* pedicellate; perianth to 2 mm. long and broad; with few irritant hairs; tepals 5, non-corniculate, narrow; stamens 5, with reflexed filaments ca. 3 mm. long; pistillode ca. 1 mm. long, as broad at the apex, obpyramidal; interfloral bracts numerous, minute; pedicel to 3 mm. long, articulated near the apex, glabrous. *Female flowers* pedicellate; perianth with 4 tepals joined at the base; the two lateral tepals to ca. 1.5 mm. long, enclosing the ovary, glabrous, the dorsal one ca. 1.5 mm. long, not geniculate, with few irritant hairs, otherwise glabrous, the ventral ca. 0.6 mm. long; ovary 1.5–2 mm. long, slightly asymmetrically ovoid; stigma linear, trifid, the upright one 2–3 mm. long, the other two ca. 2 mm. long, usually slightly directed downward; interfloral bracts minute, narrowly triangular; pedicel 0.5 mm. long, articulated at midpoint, almost glabrous. *Achenes* to 4 mm. long, 2–3 mm. broad, substipitate to sessile, without gynophore, very slightly asymmetrically ovoid, almost completely surrounded by a narrow membranous wing, on each lateral side an ovate or elliptic ridge enclosing a warty depression, with the tepals forming a minute cup at the base, not or slightly reflexed, often geocarpic; pedicel to 2 mm. long, winged dorso-ventrally, with few irritant hairs; dispersed with perianth and upper portion of pedicel attached.

This equatorial African species is unique in that the inflorescences often arise from underground stolons and the achenes often geocarpic. Add to these the characteristics of the occasional repent habit and the large size of the achenes and one finds this the most distinctive species in the genus.

The preceding species is its closest ally with which it has the following characters in common: (a) lamina almost similar in shape, size and venation, (b) the inflorescences are of the "interrupted" type although the sexuality differs in the different species, (c) stigma 3-fid, ligulate.

The varieties and subspecies maintained by various authors are not upheld here. I find too much intergradations between them. Well over a hundred collections have been studied, particularly from the Republic of Congo. The following therefore represent only a small proportion of them.

SIERRA LEONE:—Southern Prov.: Mandu: *Deighton* 1992, July 1931 (K).

LIBERIA:—Weleo Distr.: Nyaaka: *Baldwin* 6205, Pune 1947 (K).

IVORY COAST:—Mt. Momy: *Chevalier* 21356 (K).

GHANA:—sine loc.: *Thonning s.n.* (—holotype of *H. ovalifolia*: C).

TOGO:—*Warnecke* 438 (K).

NIGERIA:—Angiana: *Barter* 92 (type of *F. podocarpa*: K).

CAMEROON:—Efulen: *Bates* 424, Oct. 1895 (BR, G, K & Z).

FERNANDO PO:—Moka: *Boughey* 24, Dec. 1951 (K).

GABON:—sine loc.: *Druklage* 580, Feb. 1890 (K).

CONGO:—Albert National Park: Kalonge: *de Witte* 8256, Oct. 1952 (BR).—Eala: *Corbissier-Baland* 977, March 1931 (A, B, K, MO & S).

ANGOLA:—Cazengo: Ndalatando: *Gossweiler* 4568B, May 1946 (B, BM & US).—Golungo Alto: *Welwitsch* 6265 & 6266, Feb. 1879 (BM, G & K).

SUDAN:—Azza Forest: *Andrews A.1405*, May 1939 (K).

UGANDA:—Masaka Distr.: Malabigambo Forest: *Drummond & Hemsley* 4539, Oct. 1953 (BR & K).

KENYA:—Mt. Kenya: *Verdcourt* 2051, Dec. 1957 (UPS).

TANGANYIKA:—Mahenge Station: *Schlieben* 1814, Feb. 1932 (BR).

- (14) *Laportea peduncularis* (Wedd.) Chew in *op. cit.* 201 (1965). — *Urtica mitis* E. Meyer in Drege, *Zwei Pfl. Doc.* 127, 143 & 228 (1843), *nom. nud.*, non Vell. (1835). — *U. peduncularis* E. Meyer in Drege, *op. cit.* 143 & 228 (1843), *nom. nud.* — *Fleurya capensis* Wedd. in Arch. Mus. Hist. Nat. Paris 9: 117, tab. 1, fig. A, 7–8 (1856), *exclu. spec. typ.*, non (Thunb.) Wedd. (1854). — *F. mitis* Wedd. in Ann. Sci. Nat. ser. 4. 1: 183 (1854), *nom. nud.* — *F. peduncularis* Wedd. in DC. Prodr. 16 (1): 75 (1869).

*Diagnosis:* It distinguishes itself in the following characters: (a) an annual herb, often creeping or scrambling, (b) inflorescences well branched, with slender peduncles, (c) male flowers 5-tepalled, strongly corniculate, (d) achene sessile, without wings, with a simple stigma; (e) lamina ovate, margin serrate.

*Distribution:* East, South-east and South Africa.

Monoecious annual herbs, often creeping or scrambling, generally 1.5 m. high. *Stem* woody at the base, rarely branched, young parts covered with short appressed often slightly mounted irritant hairs, without glandular hairs, glabrous when old; stipular scars inconspicuous petiolar scars conspicuous. *Lamina* (5–) 9–10 (–12) cm. long, (3–) 6–7 (–8) cm. broad, ovate, rarely triangular, chartaceous, without glandular hairs; irritant hairs of upper surface short, appressed, sparse, those of the lower surface on midrib and veins, very rarely mounted; cystoliths of the upper surface very minutely punctiform, often not visible, those on the lower surface mainly elongated, intermixed with few punctiform ones; base generally rounded, rarely cordate or truncate; apex acuminate, 1–1.5 cm. long; margin serrate to dentate, very rarely grossly, teeth up to 0.5 cm. long, with base to 0.5 cm. broad; lateral veins 6–8 pairs, prominent, basal pair reaching up to half the length of lamina; intercostals numerous, straight, prominent.

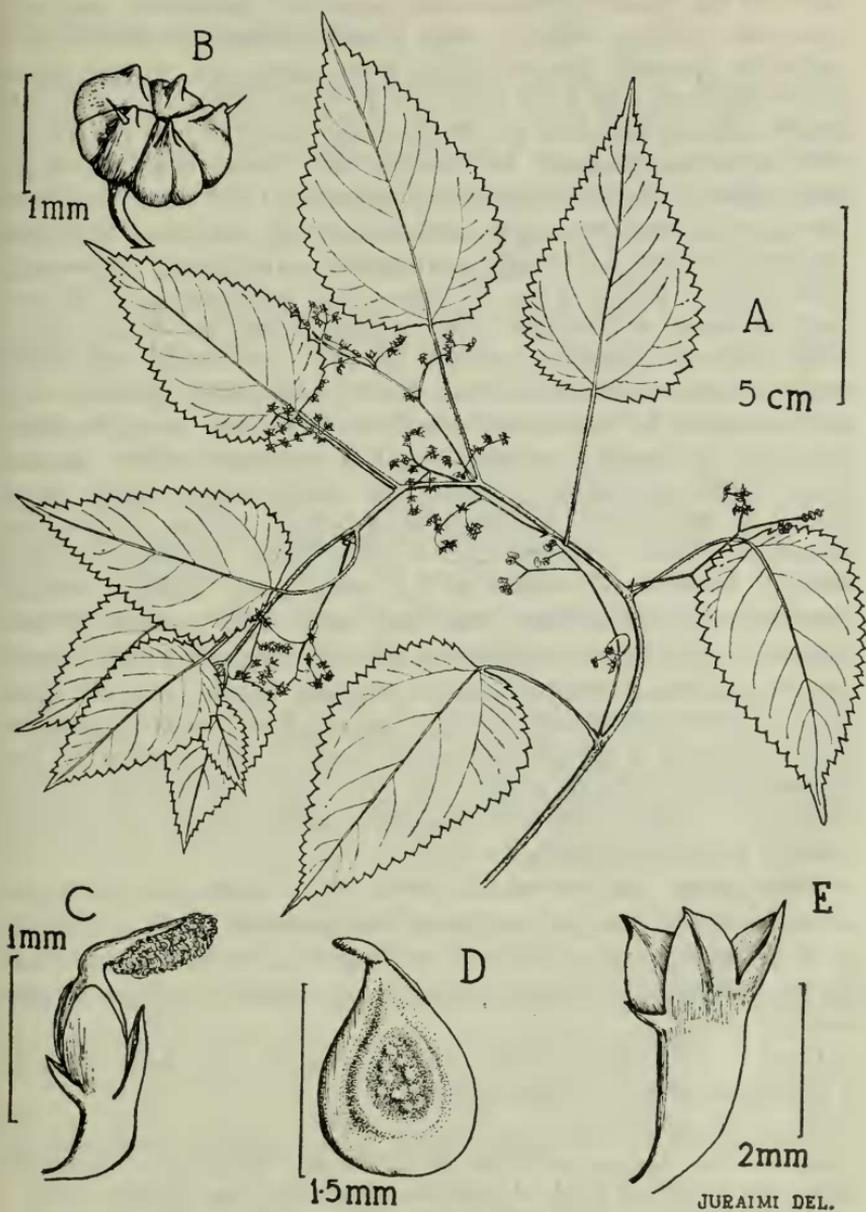


Fig. 14. *L. peduncularis*: A, twig; B, male flower; C, female flower; D, achene; E, female perianth.

Petioles (3-) 5-6 (-10) cm. long, very sparsely covered with mounted irritant hairs to glabrous. *Stipules* up to 0.7 cm. long, connate, intrapetiolar, bifid, the two tips shorter than the connate part. triangular, chartaceous, with few short appressed irritant hairs on the spines. *Inflorescences* unisexual, paniculate, sparingly branched, axillary, solitary, with minute peduncular bracts, with peduncle sparsely covered with short appressed irritant hairs, often glabrous; the male (3-) 4-6 (-9) cm. long, (2-) 3-5 (-6) cm. broad; the female 4-6 (-8) cm. long, (1-) 2-3 (-5) cm. broad, with very thin peduncle i.e. smaller and thinner than the male. *Male flowers* shortly pedicellate; perianth 1-1.5 mm. long and broad, with few very short irritant hairs at the base, otherwise glabrous; tepals 5, strongly corniculate, cymbiform; stamens 5, with reflexed filaments ca. 1.5 mm. long; pistillode ca. 0.75 mm long, as broad at the apex, obpyramidal; interfloral bracts numerous, minute, triangular; pedicel up to 1 mm. long, articulated near the apex, glabrous. *Female flowers* pedicellate; perianth with 4 free tepals, the two lateral tepals ca. 0.75 mm. long, enclosing the ovary, glabrous, the dorsal one half the length of the laterals, very slightly geniculate, glabrous, the ventral very minute; ovary 0.75-1.00 mm. long, asymmetrically ovoid; stigma linear, unbranched, rather straight, 0.5-1 mm. long; interfloral bracts minute, numerous; pedicel to 0.5 mm. long, strongly winged dorsiventrally, articulated near the base, lightly covered with minute irritant hairs. *Achenes* ca. 1.5 mm. long, ca. 1 mm. broad, sessile, without gynophore, asymmetrically ovoid, only the apex with a narrow membraneous wing, on each lateral side a triangular ridge enclosing a warted depression, half or less covered by the lateral tepals, reflexed; pedicel up to 2 mm. long, strongly dorsiventrally winged, glabrous; dispersed with perianth and upper portion of pedicel attached.

This species has the lamina form of *L. interrupta* and occasionally exhibits the repent habit characteristic of *L. ovalifolia*. It is, however, quite distinct from them on other essential characters. Together with the following two species, it forms a very natural group.

Over a hundred collections of this species have been studied. I cite here merely a small selection.

TANGANYIKA:—Morogoro Distr.: Mgeta River: *Drummond & Hemsley 1593*, March 1953 (BR, K & S).—Mt. Kilimanjaro: *Schlieben 4507*, Jan. 1934 (B, S & Z).—Usambara: *Holst 9019*, Aug. 1893 (K & Z).

NYASALAND:—Cholo Distr.: Mt. Cholo: *Brass 17733*, Sept. 1946 (BR, K, MO, NY, UC & US).

MOZAMBIQUE:—Lourenço Marques: Gaza: *Torre 7287*, Feb. 1948 (LISC).—Chimorio: Serva de Garuzo: *Barbosa 1243*, March 1948 (LISC).

SOUTHERN RHODESIA:—Chirinda Distr.: Gazaland: *Swynnerton 793*, May 1906 (K & Z).—Umtali Distr.: Range Hill: *Chase 7259*, Feb. 1960 (LISC & MO).

SOUTH AFRICA:—Cape: Somerset: *Burchell 3231* (A, K & L).—Natal: Griqualand East: *Tyson 768*, March 1886 (A, K, SAM, UPS & Z).—Port Natal: *Drege s.n.* (lectotype of *F. peduncularis*: G).

SWAZILAND: Mbabane District: *Compton 25881*, April 1956 (NBG) & 28689, March 1959 (NBG).

**(15) *Laportea caffra* Chew, spec. nov.**

*Diagnosis:* *L. pedunculari* affinis, a qua multo pusillioribus, inflorescentiis brevioribus cum floribus perpaucais, tepalis masculis haud corniculatis differt.

*Distribution:* South Africa.

Monoecious annual herbs less than 50 cm. tall. *Stem* woody at the base, branching rather broadly, well armed with irritant hairs, otherwise quite glabrous. *Lamina* ca. 2 cm. long, 1–2 cm. broad, broad ovate to triangular, chartaceous, well armed with irritant hairs, the upper surface with punctiform cystoliths, the lower with elongated ones; base rounded to truncate; apex acute; margin serrate, teeth to 2 mm. long; lateral veins ca. 4 pairs, the basal pair reaching to half the length of the lamina; intercostals few, inconspicuous. *Petioles* to 1 cm. long, armed with irritant hairs. *Stipules* minute, puberulous, caducous. *Inflorescences* unisexual, poorly branched dichasia, axillary, solitary to paired, to 5 cm. long, 1 cm. broad at the most peduncle sparse with irritant hairs. *Male flowers* pedicellate; perianth ca. 1.5 mm. long and broad, subglabrous; tepals 5, non-corniculate; stamens 5, with slightly reflexed filaments; pistillode small; pedicels ca. 1 mm. long, glabrous. *Female flowers* pedicellate; perianth ca. 0.75 mm. long, 0.6 mm. broad, enclosing the ovary, with few irritant hairs, the dorsal one not geniculate; ovary ca. 0.7 mm. long, ovoid; stigma linear, unbranched, 0.6 mm. long; interfloral bracts minute; pedicel ca. 0.4 mm. long, slightly winged dorsiventrally, articulated near the base, subglabrous. *Achenes* ca. 1.5 mm. long, 1.25 mm. broad, sessile, without gynophore, asymmetrically ovoid, without wings, on each lateral side a triangular ring enclosing a warted depression, half covered by the lateral tepals, slightly reflexed; pedicel to 1 mm. long, dorsiventrally winged, glabrous; dispersed with perianth and upper portion of pedicel attached.

In size and habit of growth, this species recalls *L. ruderalis* of the Pacific Islands. Both are small low branching herbs. However, here the superficial similarity ends.

The natural alliance of this species seems to be the *peduncularis-mooreana* group, also of Africa. As mentioned in the diagnosis above, my new species is closest to *L. peduncularis* from which it differs in three points. The specific epithet is derived from the adjective *caffer* which means *South African*.

CAPE OF GOOD HOPE:—Outeniekwaberge Distr.: near George: *R. Schlechter* 2331, 14-III-1893 (holotype in Z, isotypes in A, BR, PRC, S, SAM & UPS).

NATAL:—near Durban: *A. Hapstroem s.n.*, August 1938 (S).

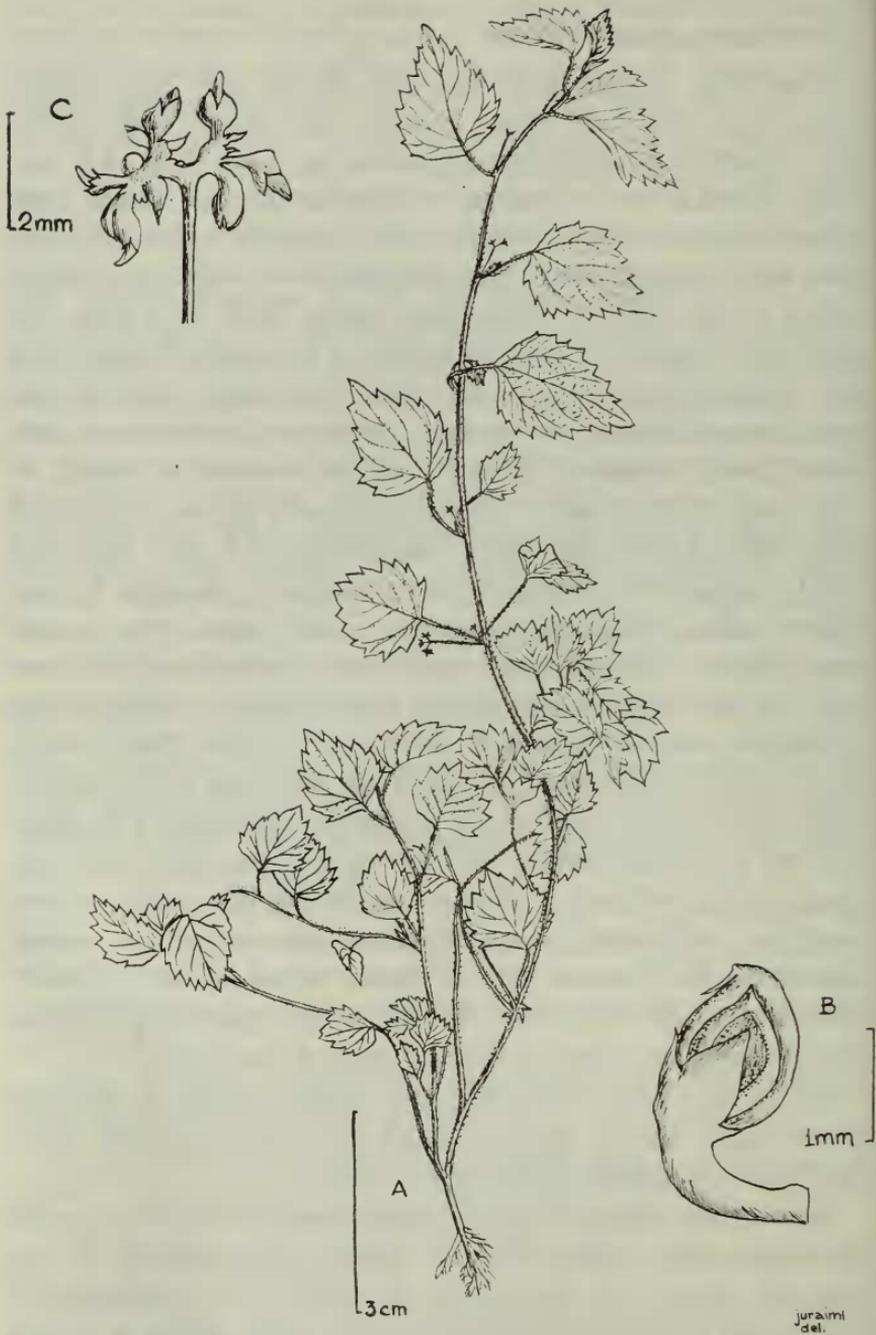


Fig. 15. *L. cafra*: A, twig; B, achene; C, female inflorescence.

(16) *Laportea mooreana* (Hiern) Chew in *op. cit.* 201 (1965); Letouzey in *op. cit.* 127 (1968). — *Adicea mooreana* Hiern, Cat. Afr. Pl. Welw. 1 (4): 991 (1900). — *Pilea mooreana* (Hiern) K. Sch. in Just, Jahresber. 28 (1): 463 (1900). — *Fleurya mooreana* (Hiern) Rendle in Prain, Fl. Trop. Afr. 6 (2): 250 (1917). — *F. funigera* Mildbr. in Notizbl. Bot. Gard. Berlin 8: 278 (1923). — *F. urophylla* Mildbr. in *op. cit.* 279 (1923).

*Diagnosis:* It distinguishes itself in (a) male perianth 4-tepalled, strongly corniculate. (b) dorsal tepal of female flowers strongly geniculate and greatly separated from the other tepals at fruit, (c) lamina triangular to deltate, grossly dentate with teeth to 1.5 cm. long.

*Distribution:* East, Central and West Africa.

Monoecious annual herbs, generally 1 to 2 m. high. *Stem* woody at the base, with few branches, usually covered with long mounted irritant hairs, otherwise glabrous, without glandular hairs; stipular scars inconspicuous, petiolar scars conspicuous. *Lamina* (5-) 8-15 (-19) cm. long, (3-) 7-12 (-15) cm. broad, triangular, broadly triangular to deltate, chartaceous, without glandular hairs; irritant hairs of upper surface short, rarely mounted, scattered, those of the lower surface on midrib and veins, often strongly mounted; both surfaces fairly densely covered with minutely punctiform cystoliths; base generally truncate; apex caudate, (1-) 1.5-3 (-4) cm. long; margin grossly dentate, teeth to 1.5 cm. long with base to 0.5 cm. broad; lateral veins 5-8 pairs, prominent, the basal pair reaching up to more than half the length of lamina; intercostals numerous, straight, fairly conspicuous. *Petioles* (3-) 5-15 (-17) cm. long, the distal part usually densely covered with long mounted irritant hairs, otherwise glabrous. *Stipules* to 1 cm. long, connate, intrapetiolar, bifid, the two tips shorter than the lower connate part, triangular, chartaceous, with few short appressed irritant hairs on the spines. *Inflorescences* bisexual, paniculate, to 44 cm. long and 10 cm. broad, axillary, solitary; peduncular bracts minute, caducous; peduncle sparsely covered with mounted irritant hairs, otherwise glabrous. *Male flowers* pedicellate; perianth 1 to 1.5 mm. long and broad, with few irritant hairs at the apex; tepals 4, strongly corniculate, cymbiform; stamens 4, with reflexed filaments ca. 1.5 mm. long; pistillode ca. 0.5 mm. long, as broad at the apex, obpyramidal; interfloral bracts numerous, minute, narrowly triangular; pedicel to 1 mm. long, articulated near the apex, glabrous. *Female flowers* pedicellate; perianth with 3 or 4 free tepals, the two lateral tepals to 0.75 mm. long, enclosing the ovary, glabrous, the dorsal one to 0.7 mm. long, geniculate, with 1 or 2 mounted irritant hairs, the ventral ca. 0.25 mm. or less in length, often absent; ovary ca. 0.5 mm. long, asymmetrically ovoid; stigma linear, unbranched, slightly reflexed, ca. 0.3 mm. long; interfloral bracts minute, numerous, narrowly triangular, pedicel to 0.5 mm. long, slightly winged dorsi-ventrally, articulated near the apex, lightly covered with minute irritant hairs. *Achenes* 1-1.5 mm. long, ca. 1 mm. broad, substipitate to sessile, on

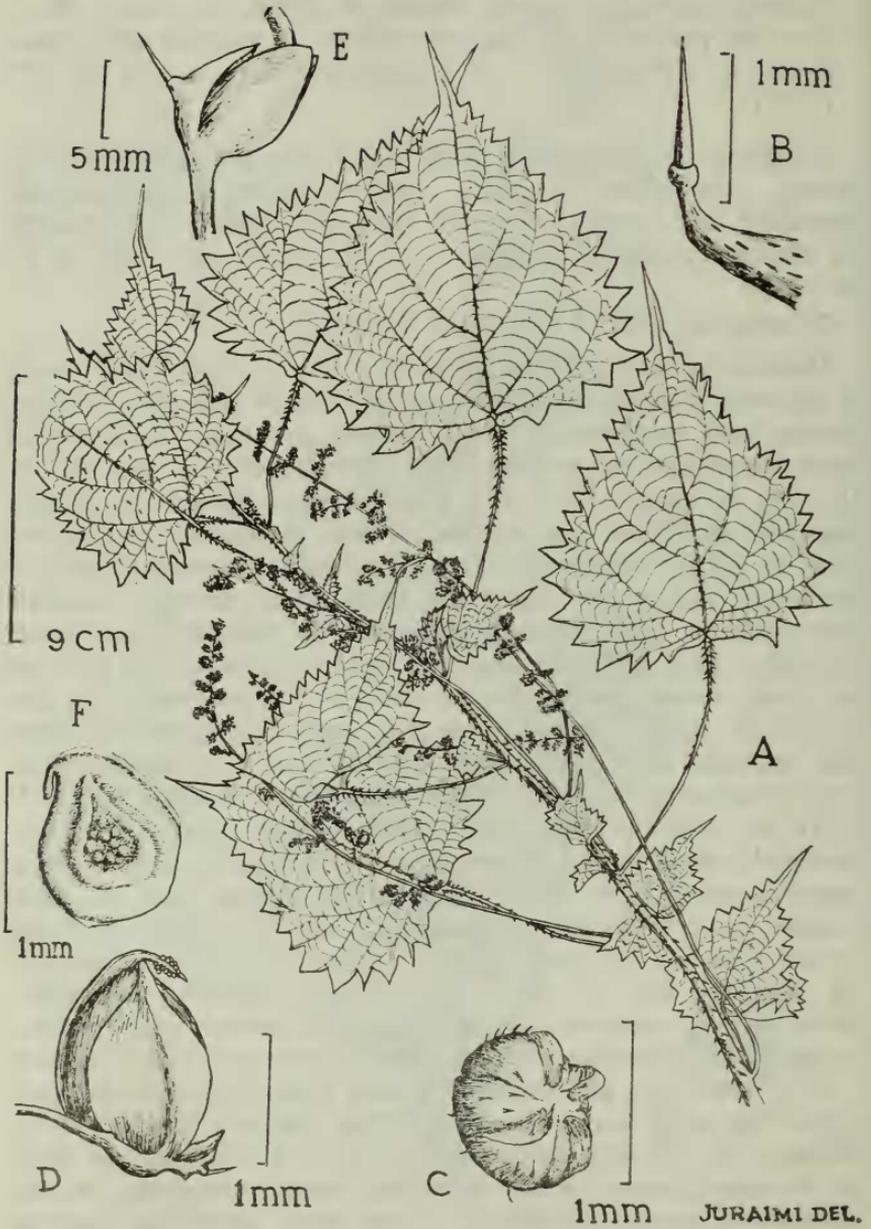


Fig. 16. *L. mooreana*: A, twig; B, mounted irritant hair; C, male flower; D, achene with perianth; E, female flower; F, achene.

minute gynophore, asymmetrically ovoid, partly surrounded by a narrow membranous wing, on each lateral side a triangular ridge enclosing a warty depression, more than half covered by the lateral tepals, reflexed; pedicel up to 2 mm. long, slightly winged dorsi-ventrally, lightly covered with minute irritant hairs; dispersed with perianth and upper portion of pedicel attached.

Though closely related to the two preceding species, *L. mooreana* approaches *L. grossa* in a few characters. In both, the lamina are triangular and borne on petioles armed with rather long mounted irritant hairs, although in the latter, the teeth of the lamina are much larger and fewer in number. Also, the dorsal tepal of the female perianth are rather strongly geniculate in both species.

This species is reported to be common at about the 1,500 metre-contour.

UGANDA:—Western Prov.: Toro Distr. *Taylor 2486*, Dec. 1934 (BM & MO).—Budongo Forest: *Loveridge 121*, Nov. 1938(A, K & MO).

TANGANYIKA:—Mahenge: Umebung: *Schlieben 1856* (BR, K, S & Z).

MOZAMBIQUE:—Zambezia: *Torre 5179*, April 1934 (LISC).—Chipende: *Lemos 8035, 8401 & 19881* (K).

NIGERIA:—Northern Div.: *H.V.L.P. 739*, Sept. 1930 (K).

BELGIUM CONGO:—Albert National Park: *de Witte 7844, 7984 & 12084* (BR).—Beni & Irumu: *Louis 5534*, Aug. 1937 (BR, C, MO & NSW).

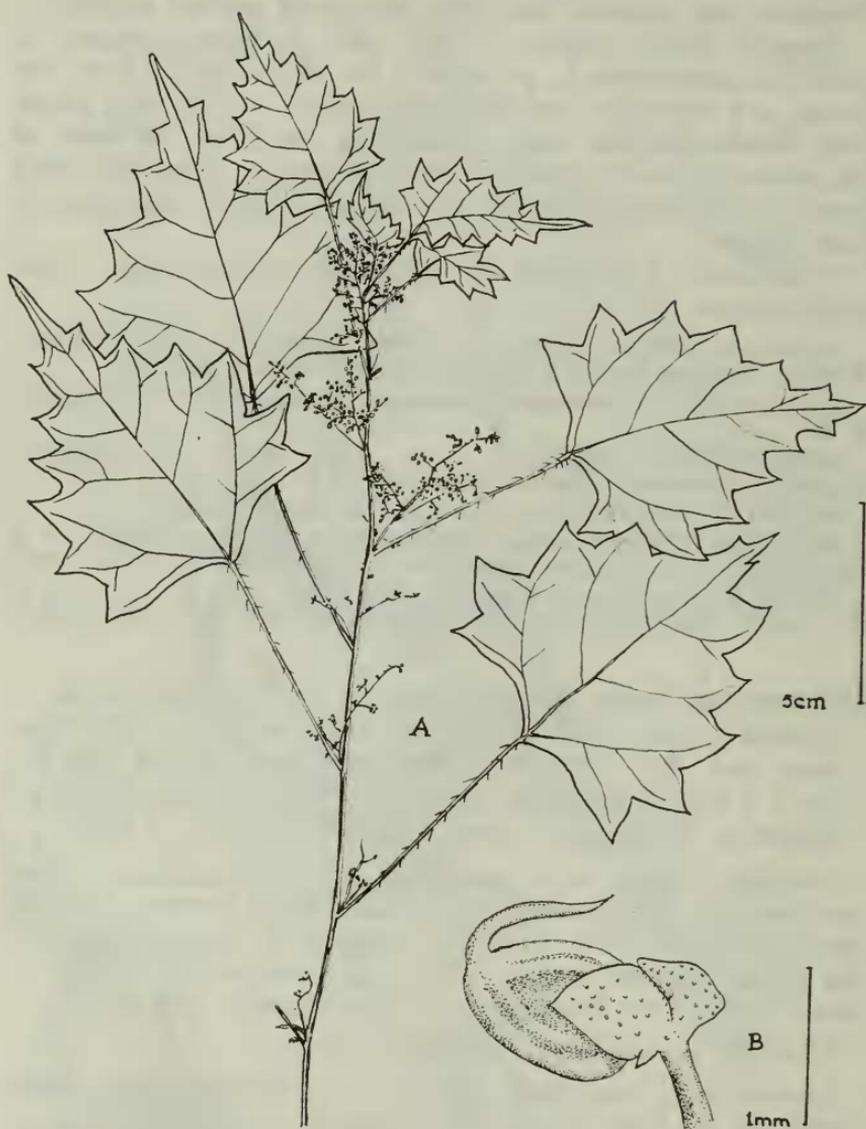
ANGOLA:—Androngo: *Welwitsch 6256, 6273, 6276 & 6295* (BM & K).—Capir: *Gossweiler 9998* Jan. 1933 (US) & *9999*, Jan. 1933 (LISJC).

(17) *Laportea grossa* (Wedd.) Chew in *op. cit.* 200 (1965). — *Fleurya grossa* Wedd. in *Ann. Sci. Nat. ser. 4. 1*: 183 (1854), *nom. nud.*, et in *Arch. Mus. Hist. Nat. Paris 9*: 119, tab. 1A, fig. 1–3 (1856), *basionym*, et in *DC. Prodr. 16* (1): 76 (1869); Brown in *Th.-Dyer, Fl. Cap. 5* (2): 545 (1925).

*Diagnosis*: Close to *L. mooreana* and *L. peduncularis*. From the former, it differs in the male flowers being 5-merous and the tepals non-corniculate. From the latter it is distinguishable by the grossly toothed lamina, the smaller inflorescences and the dorsal tepal of the female flower being strongly geniculate.

*Distribution*: South-east and South Africa.

Monoecious annual herbs less than 1 metre high. *Stem* slightly woody at the base, very rarely branched, young parts sparsely covered with long mounted irritant hairs, otherwise quite glabrous, petiolar scars quite prominent. *Lamina* (4–) 5–8 (–10) cm. long and broad, triangular, chartaceous, without glandular hairs, both surfaces sparsely armed with long mounted irritant hairs, and covered with minutely punctiform cystoliths; base truncate; apex long acuminate, acumen 1–1.5 cm. long; margin grossly toothed, teeth to 1 cm. long and equally broad at the base; lateral veins 3 to 4 pairs, the basal pair reaching to half the length of the lamina; intercostals few, somewhat anastomosing. *Petioles* (3–) 4–7 (–10) cm. long, sparsely covered with long mounted irritant hairs, otherwise quite glabrous. *Stipules* minute, connate, intra-petiolar, caducous. *Inflorescences* unisexual, paniculate, fairly well



JURAIMI DEL.

Fig. 17. *L. grossa*: A, twig; B, matured female flower.

branched, axillary solitary usually; the females up to 10 cm. long, 5 cm. broad, usually borne in the upper axils; the males shorter and narrower, borne in the lower axils; peduncle subglabrous, with few mounted irritant hairs. *Male flowers* shortly pedicellate; perianth to 2 mm. long and broad, glabrous; tepals 5, very rarely 4, non-corniculate, dense with minute punctiform cystoliths, cymbiform; stamens 5, very rarely 4, with reflexed filaments up to 2 mm. long; pistillode ca. 1 mm. long, ca. 0.75 mm. broad at the apex, obconical; interfloral bracts ca. 0.3 mm. long, triangular, 2-3 to each flower; pedicel ca. 0.6 mm. long, articulated near the apex, glabrous. *Female flowers* pedicellate; perianth with 4 free tepals, the two lateral tepals to 1 mm. long and 0.6 mm. broad, completely enclosing the ovary, glabrous, the dorsal one ca. 0.6 mm. long, strongly geniculate, glabrous, the ventral ca. 0.4 mm. long, somewhat triangular; ovary ca. 0.8 mm. long, ca. 0.5 mm. broad, asymmetrically ovoid; stigma linear, unbranched, reflexed, to 0.4 mm. long; interfloral bracts minute, not numerous; pedicel to 1 mm. long, slightly winged dorsi-ventrally, articulated near the apex, glabrous. *Achenes* ca. 1.75 mm. long, ca. 1.5 mm. broad, sessile, without gynophore, asymmetrically ovoid to slightly semi-circular, without wings, smooth and without warts, half covered by the lateral tepals, reflexed; pedicel to 2 mm. long, curved and thickened at the apex.

The shape of lamina and the form of irritant hairs in this species recall those of *L. mooreana* with which it has some relationship. In both, the lamina is triangular but in this species, the marginal teeth are larger and fewer in number and there are fewer lateral veins. Also the lamina as a whole is much smaller than that of *L. mooreana*.

MOZAMBIQUE:—Niassa Distr.:—Cabo Delgado: *Torre & Paiva 11723*, April 1964 (LISC).—Mt. Chicungulo: *Torre & Paiva 10967*, March 1964 (LISC).

SOUTH AFRICA:—Cape Prov.: Nahoon River: *Galpin 5681*, April 1900 (K). Pondoland: *Drege 9839* (K). Uitenhage: *Zeyher 3865* (lectotype in P; duplicates in FI & SAM).—Natal Prov.: Inanda: *Wood 1236* (K & SAM). Oribi Gorge: *McClellan 465*, April 1937 (MO) & *28475* (K).

(18) *Laportea lanceolata* (Engl.) Chew in *op. cit.* 201 (1965). — *Fleurya lanceolata* Engl. Abh. Preuss. Akad. Wiss. 37 (1894) & Pflanzenw. Ost.-Afr. 100: 163 (1895).

*Diagnosis*: It distinguishes itself from all the species of sect. *Fleurya* in (a) plants mainly dioecious rarely monoecious, (b) the pedicel of the female flower not elongating at fruit, (c) achenes slightly reflexed, at the lateral sides on ovate ridge enclosing a smooth depression, (d) male flowers 5-tepalled, smooth, (e) inflorescence at most as long as petiole.

*Distribution*: Central and East Africa.

Dioecious, rarely monoecious, annual herbs to 1 m. high. *Stem* slightly woody at the base, sparingly branched, glabrescent to well armed with fairly long thin irritant hairs, especially at the apex, old parts becoming glabrous, without glandular hairs; petiolar scars very conspicuous, stipular scars not so. *Lamina*

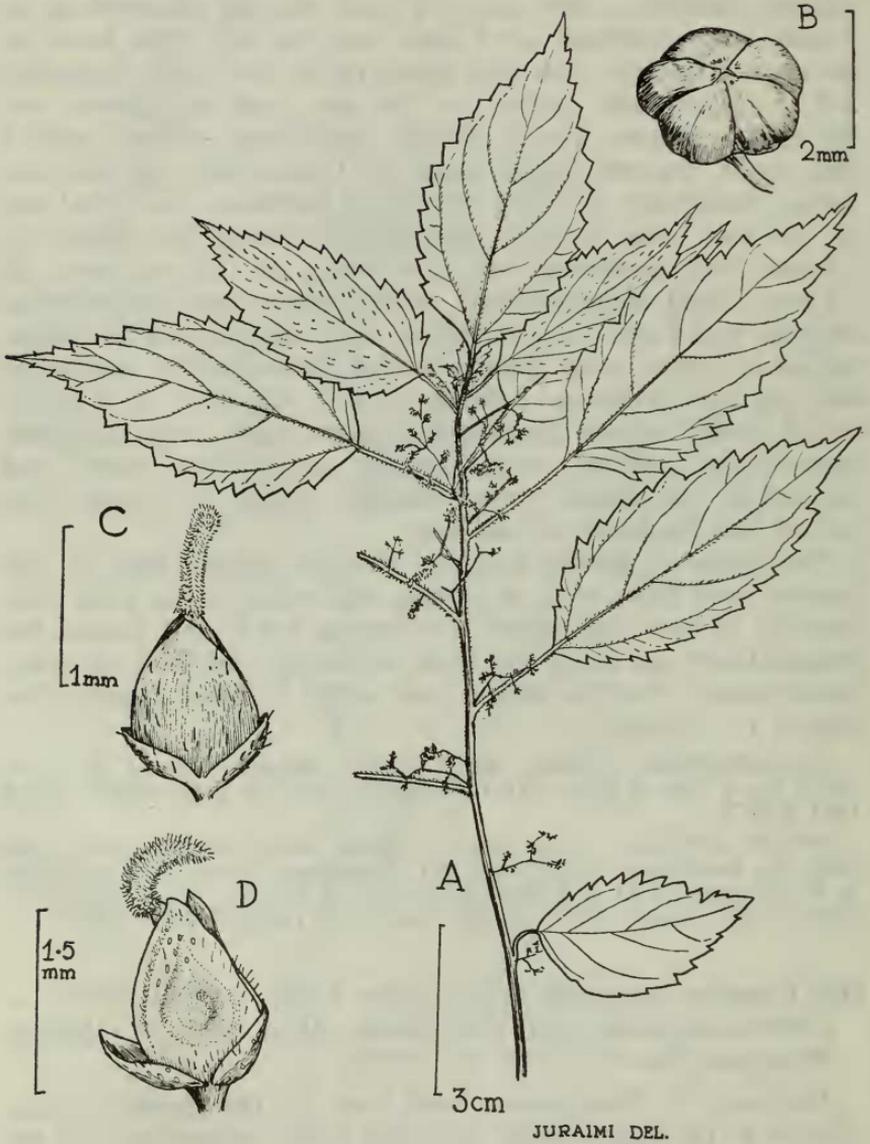


Fig. 18. *L. lanceolata*: A, twig; B, male flower; C, female flower; D, achene.

(5-) 8-15 (-20) cm. long, (2-) 3-6 (-7.5) cm. broad, narrowly ovate to elliptic, chartaceous, without glandular hairs; irritant hairs of the upper surface evenly distributed, those of the lower surface more numerous, mainly on midrib and veins, especially the basal; cystoliths of the upper surface dense, minutely punctiform, those of the lower surface somewhat elongated, also dense; base cuneate to rounded; apex long acute to acuminate, 0.5-2.5 cm. long; margin fairly broadly serrate, teeth to 0.75 cm. long, with base to 1 cm. broad; lateral veins 4-7 pairs, prominent, the basal pair more prominent, reaching to slightly more than half the length of lamina, usually straighter than the other veins; intercostals numerous, not straight, not very prominent. *Petioles* (2-) 4-6 (-9) cm. long, with irritant hairs mainly at the apex. *Stipules* to 0.3 cm. long, connate, intrapetiolar, deeply bifid, the two parts joined only at the base, chartaceous, glabrous, with elongated cystoliths, early caducous. *Inflorescences* unisexual, short paniculate, branched fairly equally, axillary, solitary or paired, with minute early caducous peduncular bracts, peduncle well armed with short irritant hairs; the male rarely more than 2 cm. long and broad, the female to 6 cm. long and 4 cm. broad. *Male flowers* pedicellate; perianth ca. 2 mm. long and broad, glabrous; tepals 5, non-corniculate, broad cymbiform; stamens 5, with reflexed filaments to 3 mm. long; pistillode up to 1 mm. long and broad, obconical; interfloral bracts minute, not numerous; pedicel to 2 mm. long, articulated near the apex, usually with short irritant hairs. *Female flowers* pedicellate; perianth with 4 free tepals, well armed with fine irritant hairs; the two lateral tepals to 1 mm. long, 0.6 mm. broad, broadly ovate, enclosing the ovary, fringed; the dorsal and the ventral ones ca. 0.4 mm. long and broad, very broad ovate, not geniculate; ovary ca. 1 mm. long, 0.6 mm. broad, asymmetrically ovoid; stigma linear, unbranched, to 1 mm. long, slightly bent; interfloral bracts to 0.3 mm. long, triangular, very few; pedicel to 0.4 mm. long, articulated at about midpoint, frequently glabrous. *Achenes* ca. 1.4 mm. long, ca. 1 mm. broad, substipitate to sessile, without gynophore, asymmetrically ovoid, only the bottom corner with a very narrow membranous wing, on each lateral side an ovate ridge enclosing a smooth depression, completely covered by the lateral tepals, slightly reflexed; pedicel ca. 0.5 mm. long, often 0.4 mm., simple, not winged, glabrous to very slightly armed with fine irritant hairs; dispersed with only the perianth attached.

This very distinctive species is perhaps a remote relative of *L. aestuans* with which it has a few points in common such as lamina shape and margin. The erect nature of the female flowers brings this species also close to *L. ovalifolia*.

CONGO:—Semliki Valley: Ituri: *Humbert 9001*, July 1929 (B & BR).

KENYA:—Marengi Forest Reserve: Mrima Hill: *Verdcourt 1940*, Sept. 1957 (BR).

TANGANYIKA:—Kaogwe Distr.: *Faulkner 1033* (BR, K & S).—Kimbozo Distr.: *Bruce 1030* (BM, BR & K).—Lushoto Distr.: *Drummond & Hemsley 3187*, July 1953 (BR, K, LISC & S).—Mahenge Station: *Schlieben 1546 & 1547*, Dec. 1931 (BM, K, S & Z).—Morogoro: *Haarer 1859*, June 1930 (K); *Schlieben 3802 & 3904*, May 1933 (B, BR, S & Z).—Usambara: *Holst 8833*, Aug. 1898 isotype of *F. lanceolata*: K).

(19) *Laportea aestuans* (L.) Chew in *op. cit.* 200 (1965); Letouzey in *op. cit.* 121 (1968). — *Urtica aestuans* L. Sp. Pl. ed. 2. 1397 (1763). — *U. divaricata* Forssk. Fl. Aegypt. Arab. 160 (1775), non L. (1753). — *U. hirsuta* Vahl, Symb. Bot. Pl. 1: 77 (1790). — *U. latifolia* Rich. Act. Soc. Hist. Nat. Paris 1: 113 (1792). — *U. nemorosa* Kunth in Bonpl. & Humb. Nov. Gen. & Sp. Pl. 2: 42 (1817). — *U. divergens* Mey. Prim. Fl. Esseg. 264 (1818). — *U. caravellana* Schrank, Pl. Rar. Hort. Monac., tab. 82 (1819). — *Fleurya cordata* Gaud. in Freyc. Voy. Uraïne Bot. 498 (1830). — *F. petiolata* Decne. in Nouv. Ann. Mus. Hist. Nat. Paris, ser. 3. 3: 490 (1834) & Herb. Timor. 162 (1835). — *U. cordata* (Gaud.) Steud. & *U. petiolata* (Decne.) Steud. Nom. Bot. ed. 2. 2: 734, 735 (1841). — *U. schimperiana* Hochst. ex Steud. in Flora, 33: 259 (1850). — *F. caravellana* (Schrank) Wedd. in Ann. Sci. Nat. ser. 3. 18: 204 (1852). — *F. glandulosa* Wedd. in *op. cit.* 205 (1852). — *F. aestuans* (L.) Miq. in Martius, Fl. Braz. 4 (1): 196 (1853). — *F. ingrata* Miq. in Zoll. Syst. Verz. Ind. Archip. 103, 106 (1854). — *U. tuberculata* Anderss. in Vet. Akad. Handl. Stockh. 1853: 159 (1855). — *F. lurida* Bl. Mus. Bot. Lugd. Bat. 2: fig. 21 (1856). — *F. perrieri* Leandri in Ann. Mus. Col. Marseille, ser. 6. 7–8: 16, fig. III (1950). — *L. bathiei* Leandri in Fl. Madagascar, 56: 10 (1965).

*Diagnosis:* Easily distinguished by the following combination of characters: (a) monoecious annual herbs with glandular hairs, (b) lamina ovate, chartaceous, the margin dentate, teeth ca. 0.5 cm. long, (c) inflorescences bisexual, widely branched racemes, (d) male perianth 4 or 5 tepalled, with few long glandular hairs.

*Distribution:* Tropical America, West Indies, Tropical Africa, Madagascar, Arabia, India, Sumatra, Java and Lesser Sunda Islands.

Monoecious annual herbs, generally 1 m. high, rarely to 2 m. *Stem* usually fleshy, slightly woody at the base, with few branches, glabrescent to densely covered with simple irritant hairs and long glandular hairs; stipular scars inconspicuous, petiolar scars usually quite conspicuous. *Lamina* (3–) 10–15 (–30) cm. long, (2–) 8–12 (–22) cm. broad, ovate to very broad ovate, chartaceous, usually without glandular hairs; irritant hairs scattered on upper surface, more and mainly on veins of the lower surface; cystoliths of the upper surface punctiform, densely and well dispersed over the surface, those of the lower surface elongated and concentrated on veins; base rounded, truncate to cordate; apex acuminate, often sharply, 1–1.5 cm. long; margin dentate, the teeth less than 0.5 cm. long with base ca. 0.5 cm. broad; lateral veins 5–8 pairs, rather prominent, the basal pair reaching up to more than half the length of lamina; intercostals numerous, rather straight. *Petioles* (2–) 5–15 (–20) cm. long, usually densely covered with irritant as well as long glandular hairs, very rarely glabrescent. *Stipules* up to 1 cm. long, connate, intrapetiolar, bifid, the two tips usually as long as the lower connate part, triangular, chartaceous, with few short irritant hairs on the spines. *Inflorescences* bisexual, paniculate, up

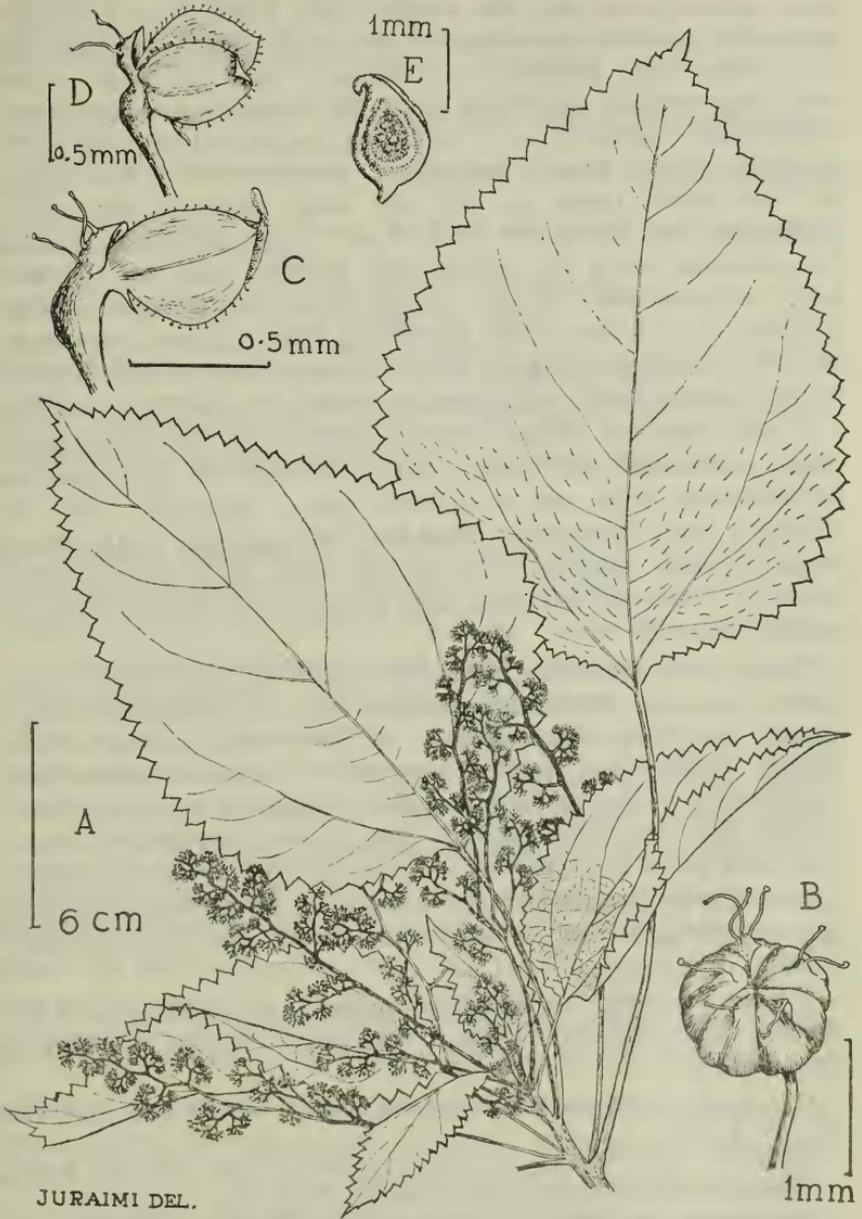


Fig. 19. *L. aestuans*: A, twig; B, male flower; C, matured female flower; D, perianth; E, achene.

to 20 cm. long, 10 cm. broad, axillary, those of lower axils very rarely all-male, solitary, rarely paired; peduncular bracts absent; peduncle usually well covered with irritant hairs and long to very long glandular hairs. *Male flowers* pedicellate; perianth up to 1.5 mm. long and broad, with few long glandular hairs at the apex, at most with very few irritant hairs; tepals 4 or 5, slightly corniculate, cymbiform; stamens 4 or 5, with reflexed filaments up to 1.5 mm. long; pistillode ca. 0.25 mm. long, as broad at the apex, obpyramidal; interfloral bracts very numerous, minute, narrowly ovate; pedicel up to 1 mm. long, articulated near the apex, glabrous. *Female flowers* pedicellate; perianth with 4 free tepals, the two lateral tepals ca. 0.5 mm. long, enclosing the ovary, glabrescent, the dorsal one ca. 0.25 mm. long, geniculate, bearing 3-5 glandular hairs, the ventral very minute; ovary ca. 0.5 mm. long, asymmetrically ovoid; stigma linear, unbranched, slightly reflexed, ca. 0.3 mm. long; interfloral bracts minute, numerous, narrowly triangular; pedicel up to 0.5 mm. long, usually slightly winged dorsiventrally, articulated near the apex, glabrous. *Achenes* 1-2 mm. long and broad, shortly stipitate, on very small gynophore, asymmetrically ovoid, partly surrounded by a narrow membranous wing, on each lateral side a triangular ridge enclosing a warty depression, more than half covered by the lateral tepals, reflexed; pedicel up to 2 mm. long, often winged dorsiventrally, glabrous; dispersed with perianth and upper portion of pedicel attached.

This occurs as herbaceous weeds preferring semi-shaded areas along roads, in abandoned gardens and in plantations and is almost as widely distributed as *L. interrupta*, another weedy species. Unlike this species, however, *L. aestuans* varies quite considerably in lamina form and size throughout its range. Nevertheless, intergradations between the various populations are so numerous that it is impossible to recognise any infra-specific groups.

In so far as the inflorescence structure is concerned, this species approaches *L. ruderalis* of the Pacific Islands; but these two differ in floral details.

I have examined an enormous quantity of collections of this species. The following is but a very small fraction of the total dealt with.

GALAPAGOS ISLANDS:—Abingdon Island: *Stewart 1172*, Sept. 1905 (A, MO & US).

MEXICO:—Sinaloa State: La Noria: *Mexia 317*, Oct. 1925 (MO & UC).

GUATEMALA:—Izabal Dept.: *Standley 73090* (F).

PANAMA:—Canal Zone: Ancon: *Pittier 2751*, Feb. 1911 (US).

CUBA:—St. Elena: *Poeppig s.n.* (PRC).

JAMAICA:—Burlington: *Harris 5981*, Nov. 1895 (Z).—New Market: *Britton 1415*, Sept. 1907 (NY).

HISPANIOLA:—Haiti: *Ekman 2667*, Nov. 1924 (K & S).—Dominican Republic: *Ekman 15919*, Aug. 1930 (B, S & US).

COLOMBIA:—Bolívar Div.: Turbaco: *Killip & Smith 14346*, Nov. 1926 (A, NY & US).

PERU:—Iquitos: *Asplund 14147*, Oct. 1940 (US); *Williams 1340*, July 1929 (A, F & US).

VENEZUELA:—Caracas: *Bailey & Bailey* 375, Dec. 1920 (US).—Merida State: *Fendler* 1242 (K).

BRAZIL:—Para: Belem: *Dahlgren & Sella* 259, March 1929 (F).—Bahia: Barra: *Spruce* 1507, May 1851 (CGE & K).

LIBERIA:—Central Prov.: Gbarnga: *Traub* 258, Aug. 1951 (BM, BR, C, F, MO, UPS & US).

NIGERIA:—Southern: Lagos: *Dalziel* 1173, Oct. 1917 (C & K).

BELGIAN CONGO:—Equateur Prov.: Bikoro: *Goosens* 2315, Dec. 1920 (BR).—Orientale Prov.: Yambuya: *Louis* 11334 & 12334, Nov. 1938 (BR).

MOZAMBIQUE:—Niassa Distr.: Malema: *Torre & Paiva* 10562, Feb. 1964 (LISC).

UGANDA:—Western Prov.: Virunga Mts.: *Taylor* 1943, Nov. 1934 (MO).

MADAGASCAR:—Ankarana: *Humbert & Cours* 32498 & 32519, Jan.-Feb. 1960 (P & SING).

ARABIA:—Agara: *Schweinfurth* 1017, Feb. 1889 (P).

INDIA:—Shevaroi Hills: *Perrottet* 93 (K).

SUMATRA:—Batang Baroes: *Teysmann H.B.* 747 (BO).—North: Siberie Island: *Docters van Leeuwen* 5327, April 1921 (BO).

JAVA:—West Java: P. Macira: *van Steenis* 11247, June 1939 (BO).—Batavia: *Backer* 31729, 31730, 31731 & 31732 (BO).

LESSER SUNDA ISLANDS:—Timor: Baumata: *Bloembergen* 3552, March 1939 (L).

- (20) *Laportea ruderalis* (Forst. f.) Chew in *op. cit.* 201 (1965). — *Urtica ruderalis* Forst. f. Fl. Ins. Austr. Prodr. 66 (1786). — *Fleurya paniculata* Gaud. in Frey. Voy. Uraïne Bot. 497 (1830). — *Boehmeria paniculata* (Gaud.) Endl. in Ann. Wien Mus. 1: 165. no. 863 (1836). — *Schychowskia ruderalis* (Forst. f.) Endl. in *op. cit.* 187. tab. 13 (1836). — *U. paniculata* (Gaud.) Steud. Nom. Bot. ed. 2. 2: 735 (1841). — *F. ruderalis* (Forst. f.) Wedd. in Ann. Sc.. Nat. ser. 4. 1: 182 (1854); Wedd. in DC. Prodr. 16 (1): 74 (1869); St. John & Mason in Pacific Sci. 7: 166 (1953).

*Diagnosis:* It distinguishes itself in (a) plants completely glabrous and quite without irritant hairs, (b) pedicels of female flowers not winged, (c) stigma somewhat brush-like, not ligulate.

*Distribution:* Christmas Island, Philippines, Lesser Sunda Islands through East Malesia to Melanesia, Micronesia and Polynesia.

Monoecious annual herbs, usually less than 60 cm. high, completely glabrous and quite without irritant or glandular hairs. *Stem* slightly woody at the base, with few to many branches, especially the small plants on coral rocks, almost completely covered with elongated cystoliths, often reddish chocolate in colour; stipular and petiolar scars usually very inconspicuous. *Lamina* (1.5–) 4–7 (–10) cm. long, (0.9–) 2–5 (–6) cm. broad, ovate, very rarely broadly ovate, chartaceous; cystoliths of the upper surface very minutely punctiform, dense, those of the lower surface elongated, mainly on the veins and veinlets; base cuneate to rounded, very rarely cordate; apex acute, rarely acuminate, usually less than 0.75 cm.

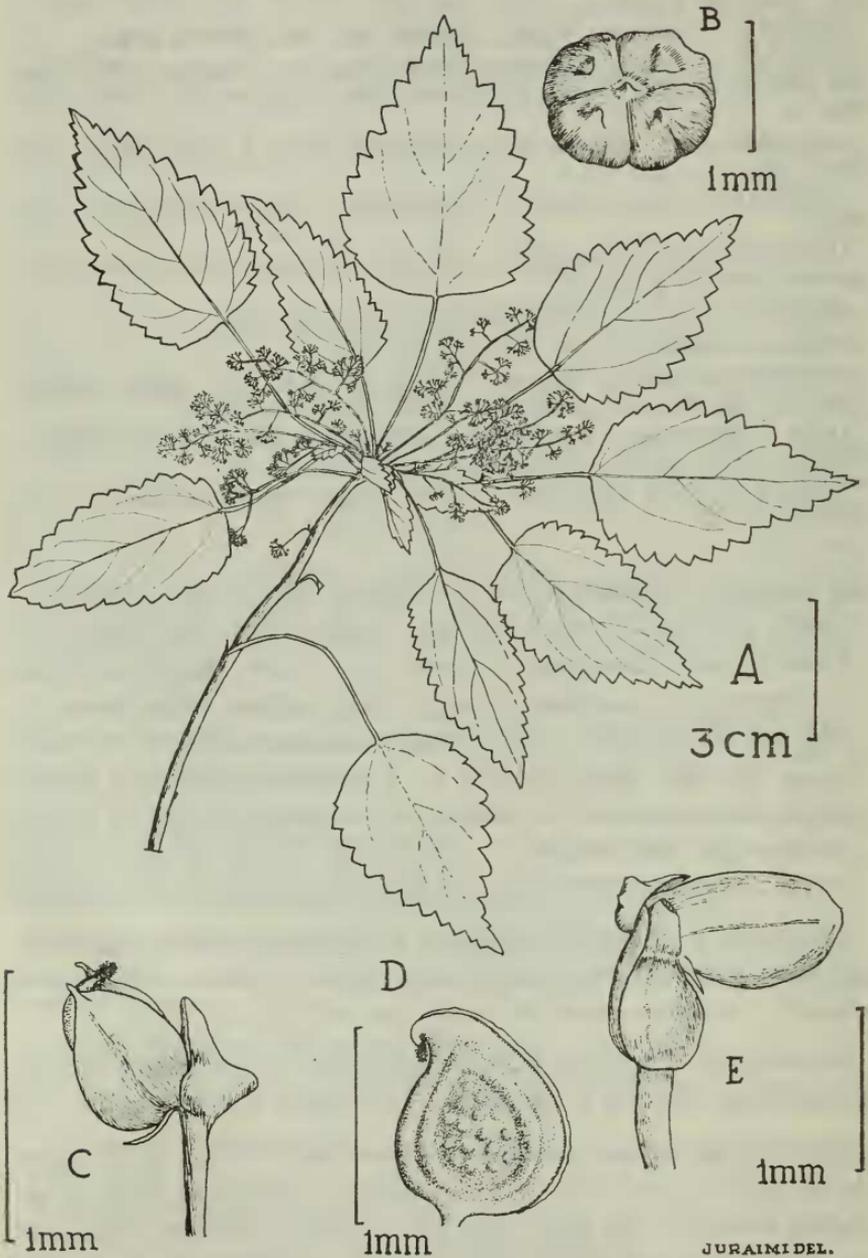


Fig. 20. *L. ruderalis*: A, twig; B, male flower; C, female flower; D, achene; E, female pedicel and perianth.

long; margin usually crenate, teeth ca. 0.3 cm. long, with base 0.4 cm. broad; lateral veins 3–7 pairs, often rather faint, the basal pair reaching to more than half the length of lamina; intercostals numerous, faint, rarely straight. *Petioles* (0.5–) 3–6 (–9) cm. long, usually densely covered with elongated cystoliths. *Stipules* 1–2 mm. long, connate, intrapetiolar, bifid, the two tips shorter than the connate part, cymbiform, chartaceous, very caducous. *Inflorescences* unisexual, rarely bisexual, paniculate, well branched, axillary, solitary, rarely paired, with minute caducous peduncular bracts, with peduncle completely covered with elongated cystoliths; male up to 7 cm. long and 3 cm. broad, female to 10 cm. long and 3.5 cm. broad. *Male flowers* pedicellate; perianth 1–1.5 mm. long and broad; tepals 4, often strongly corniculate, cymbiform; stamens 4, with reflexed filaments ca. 1.5 mm. long; pistillode ca. 0.5 mm. long, as broad at the apex, obconical; interfloral bracts few, very minute; pedicel to 1.5 mm. long, articulated near the apex, glabrous. *Female flowers* pedicellate; perianth with 4 free tepals, the two lateral tepals less than 0.4 mm. long, enclosing the ovary, glabrous; the dorsal one ca. 0.4 mm. long, very strongly geniculate, glabrous; the ventral very minute, less than 0.25 mm. long; ovary ca. 0.3 mm. long, asymmetrically ellipsoid; stigma somewhat capitate or brush-like, not linear, unbranched, slightly reflexed, ca. 0.1 mm. long; interfloral bracts numerous, to 0.4 mm. long; pedicel ca. 0.3–0.5 mm. long, not winged, articulated near the apex. *Achenes* 1.25 mm. long, ca. 1 mm. broad, stipitate, with stipe 0.2 mm. or less, on gynophore ca. 0.5 mm. long asymmetrically ovoid, half surrounded by a narrow membranous wing, on each lateral side an ovate ridge enclosing a warty depression, more than half covered by the lateral tepals, greatly reflexed; pedicel to 2 mm. long, simple, not winged; dispersed with the perianth and upper portion of pedicel attached.

A small herb completely devoid of irritant hairs, this has the inflorescence of *L. aestuans* but the female flowers of *L. cuneata* with which our species is closely related.

I have seen the holotype of *F. paniculata* and am quite satisfied that it belongs here.

CHRISTMAS ISLAND (Indian Ocean):—Flying Fish Cove: *Andrews 134* (K); *Ridley 155* (K & SING).

PHILIPPINES:—Cavilli Island: *Merrill 402*, Sept. 1910 (FI, K, M, NY, U, WRSL & Z).—Luzon: Bulacan Prov.: *Angat: Ramos 21725*, Sept. 1913 (L).

LESSER SUNDA ISLANDS:—Kangean Archip.: Sepandjang: *Backer 29013*, April 1919 (BO).

CELEBES:—Boetan: *Boer bb. 2235*, March 1921 (BO).—Kajoedi: *Docters van Leeuwen 1327*, May 1913 (BO & U).

MOLUCCAS:—Aroe Isl.: *Buwalda 4878*, May 1938 (A, BO, K & L). Babar Isl.: *Borssum Waalkes 3108*, March 1956 (L).

NEW GUINEA:—Jappen: Biak: *Aet & Idjan 894*, Sept. 1939 (A, BO, K & L).—Papua: Misima Island: *Brass 27604*, Aug. 1956 (L, LAE & US).

BISMARCK ARCHIPELAGO:—Mussau: Uni: *Koie & Olsen 1282*, Jan. 1962 (C & SING).

MELANESIA:—Solomon Islands: Owa Riki Island: *Brass 3076*, Oct. 1932 (A, BO, BRI & L).

MICRONESIA:—Caroline Islands: Nama Island: *Anderson 907*, Dec. 1949 (L & US).—Marshall Islands: Likiep Atoll: *Fosberg 27004*, Aug. 1946 (L & NY).—Marianas: Rota: *Gaudichaud 20* (type of *F. paniculata*: G & P).—Gilbert Islands: Onotoa: *Moul 8336*, Aug. 1951 (A & UC).

POLYNESIA:—Line Islands: Fanning Isl.: *Arundel 8* (A & K); *Ball 10*, July 1922 (BO, BRI & K).—Society Island: *Forster s.n.* (type of *U. ruderalis*: BM, C & P).—Samoa: *Powell 40*, Sept. 1877 (K).—Tuamotu: Raroia Atoll: *Doty & Newhouse 11005*, June 1952 (US).

- (21) *Laportea cuneata* (A. Rich.) Chew in *op. cit.* 200 (1965). — *Urtica cuneata* A. Rich. in Ramon de la Sagra, *Hist. Fis. Isla Cuba II. Bot.* 11: 224 (1850). — *Fleurya umbellata* Wedd. in *Ann. Sci. Nat. ser. 3.* 18: 204 (1852). — *F. glomerata* Griseb. *Cat. Pl. Cuba* 58 (1866), non Gaud. (1830). — *F. cuneata* (A. Rich.) Wedd. in DC. *Prodr.* 16 (1): 73 (1869).

*Diagnosis:* It distinguishes itself from all the other species by the following unique characters (a) the male inflorescence apedunculate, with the flowers at the base of the female inflorescence, (b) the female inflorescence a simple or compound corymb, (c) lamina often trilobed with strongly serrated margin, (d) branches often opposite, arising near the base of the stem.

*Distribution:* Cuba & Hispaniola.

Monoecious annual herbs to ca. 60 cm. high, rarely repent. *Stem* slightly woody at the base, with few branches often opposite and arising near the base, the apex with numerous short appressed irritant hairs, the rest with fewer but long rigid ones, otherwise glabrous, quite densely covered with elongated cystoliths, without glandular hairs, stipular and petiolar scars not conspicuous. *Lamina* (0.5–) 1.5–3.5 (–5.5) cm. long, (0.3–) 1–3 (–5) cm. broad, usually broadly ovate, rarely narrowly ovate or rhombic, often trilobed, thinly chartaceous, without glandular hairs; irritant hairs very short, minute and appressed to as long as 3 mm., evenly distributed on the upper surface of lamina, on the lower surface mainly on the midrib and veins; cystoliths dense on both surfaces, those of the upper surface punctiform, often very shortly elongated, rarely visible, those of the other surface elongated, easily visible; base narrowly to broadly cuneate to rounded; apex acute to acuminate, very rarely caudate, up to 0.5 cm. long; margin usually serrate, rarely smooth or grossly serrate, teeth up to 0.6 cm. long with base ca. 0.5 cm. broad; lateral veins usually less than 5 pairs, usually faint, the basal pair reaching to slightly more than half length of lamina; intercostals numerous, anastomosing, very faint. *Petioles* (0.3–) 1–3 (–7) cm. long, usually lightly armed with long irritant hairs, densely covered with elongated cystoliths.

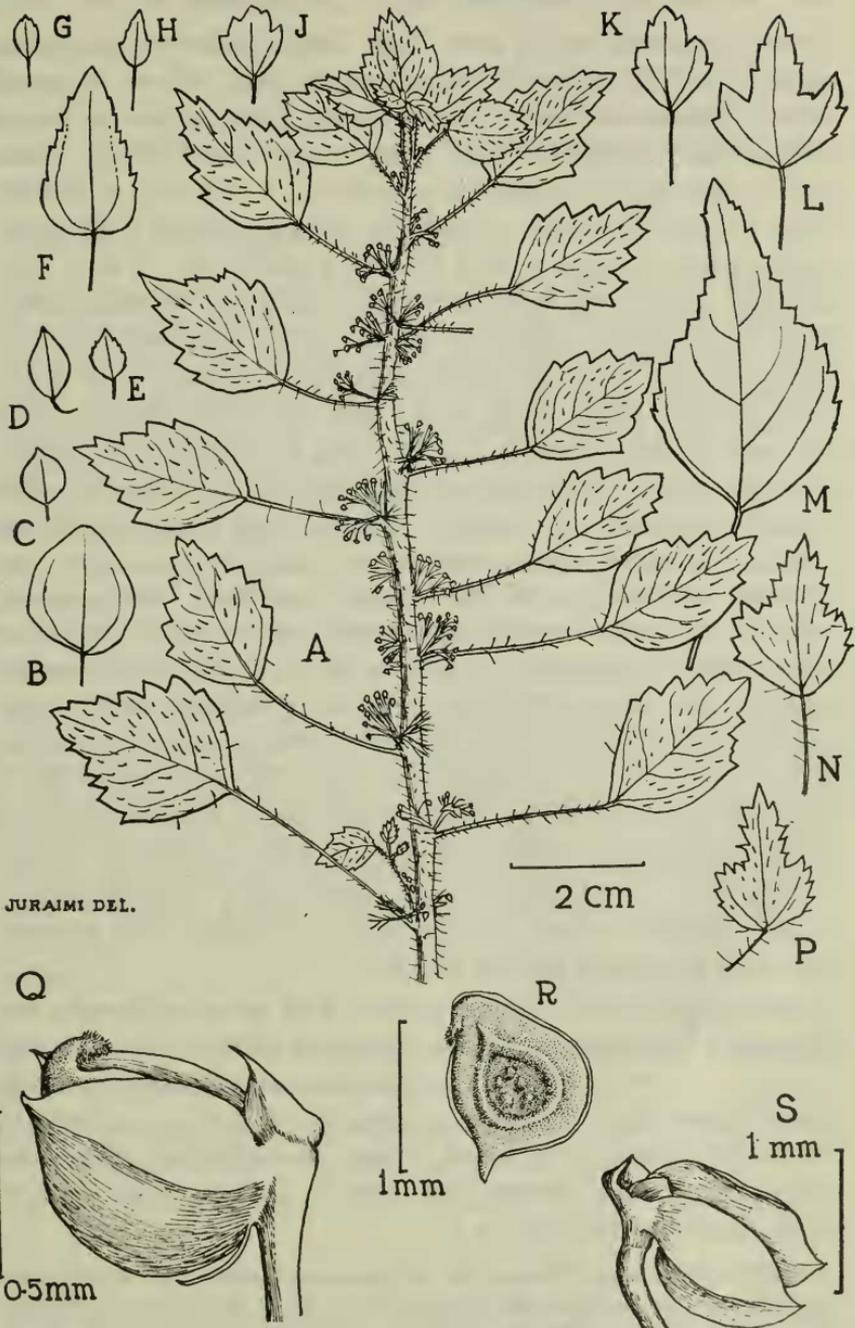


Fig. 21. *L. cuneata*: A, twig; B to P, different leaf-forms; Q, female flower; R, achene; S, female pedicel and perianth.

*Stipules* less than 0.1 cm. long, connate, intrapetiolar, bifid, the two tips shorter than the connate part, broadly triangular, very thin chartaceous, glabrous, usually very inconspicuous, very caducous. *Inflorescences* unisexual; male apedunculate, axillary, with flowers fasciculate at the base of the female inflorescence; female up to 2 cm. long and broad, corymbose, axillary, solitary or paired, without peduncular bracts, with peduncle lightly armed with long irritant hairs, multi-flowered, very rarely one-flowered. *Male flowers* very shortly pedicellate; perianth ca. 1 mm. long and broad; tepals 4, non-corniculate, cymbiform, densely covered with minute irritant hairs; stamens 4, with reflexed filaments to 1.5 mm. long; pistillode ca. 0.5 mm. long, as broad at the apex, obconical; interfloral bracts absent; pedicel to 0.5 mm. long, articulated near the apex, glabrous. *Female flowers* pedicellate; perianth with 4 free tepals, the two lateral tepals ca. 0.4 mm. long, enclosing the ovary, glabrous; the dorsal one ca. 0.3 mm. long, geniculate, often slightly, with one or two rather long irritant hairs; the ventral less than 0.2 mm. long, glabrous; ovary ca. 0.3 mm. long, ellipsoid, asymmetrical at the apex; stigma capitate or brush-like, not linear, unbranched, reflexed, to 0.2 mm. long; interfloral bracts absent; pedicel ca. 0.6 mm. long, slightly winged dorsi-ventrally, articulated near the apex. *Achenes* ca. 1–1.5 mm. long, ca. 0.8–1.2 mm. broad, stipitate, with stipe to 0.4 mm. long, on gynophore ca. 0.4 mm. long asymmetrically ovoid or pyriform, almost entirely surrounded by a very narrow membraneous wing, on each lateral side a triangular ridge enclosing a warty depression, at most half covered by the lateral tepals, greatly reflexed; pedicel of lowermost flower longest, up to 4 mm. long, progressively shorter towards apex of corymb, slightly winged dorsi-ventrally; dispersed with perianth and upper portion of pedicel attached.

The uniqueness of the inflorescence, both male and female, has no parallel in the genus. This so impressed Weddell that he noted it as a.....*species optima, characteribus essentialibus constantissimis*. He was quite correct in placing this next to *L. ruderalis* of the Pacific Islands with which it has close affinities. Both have very similar female flowers and achenes. Besides, they seem to prefer limestone habitats.

̄ CUBA:—Guanimar: *Ramon de la Sagra s.n.* (holotype of *U. cuneata*: P).—Havana: *Curtiss 609*, Jan. 1905 (BM, C, F, K, L, MO, NY, PRC & US).—Isla de Pinos: *Ekman 12333*, Nov. 1920 (F, K, NY & S).—Santa Clara Prov. *Combs 277* (F, K & MO); *Howard 6272*, Aug. 1941 (F, GH, MICH, MO, NY, UC & US).—sine loc.: *Wright 2228* (type of *F. glomerata*: BM, GH, K, MO, NY & US); *Poeppig s.n.* (type of *F. umbellata*: L & PRC).

HISPANIOLA: Haiti:—Gonaives: *Nash & Taylor 1501*(NY).—Hinche: *Ekman 6156*, May 1926 (S).—Morne Calumnette: *Ekman 7321*, Nov. 1926 (S & US).

(22) *Laportea floribunda* (Baker) Leandri in Ann. Mus. Col. Marseille, ser. 6. 7-8: 24 (1950) & in Humbert, Fl. Madagascar, 56: 15. fig. 3 (1965); Chew in Gard. Bull. Sing. 21: 199 (1965). — *Pilea floribunda* Baker in Kew Bull. 280 (1897).

*Diagnosis:* It distinguishes itself from all the species of sect. *Fleurya* by the following characters: (a) dioecious shrubs densely covered with short erect irritant hairs, (b) lamina elliptic, finely dentate, slightly bullate, (c) female flowers somewhat flabellately arranged.

*Distribution:* Madagascar (endemic!).

Dioecious shrubs. *Stem* dense with short irritant hairs. *Lamina* to 22 cm. long, 10 cm. broad, elliptic, subcoriaceous, lightly bullate, both surfaces densely covered with short erect irritant hairs; base cuneate; apex acuminate, acumen to ca. 1.5 cm. long; margin rather finely dentate; lateral veins ca. 8 pairs, the basal pair slightly more prominent, reaching to a third the length of the lamina; intercostals numerous, somewhat anastomosing. *Petioles* to 7 cm. long, densely covered with short irritant hairs. *Stipules* 1.5 cm. long, 0.5 cm. broad, pubescent. *Inflorescences* unisexual, narrowly paniculate, axillary, solitary, to 20 cm. long, 5-7 cm. broad; peduncle densely covered with short irritant hairs. *Male flowers* sessile, ca. 2 mm. long and broad with 5 tepals; stamens 5, some occasionally rudimentary, filaments slightly reflexed; pistillode slightly peltate with a hollow at the apex. *Female flowers* pedicellate; perianth ca. 0.75 mm. long, 0.5 mm. broad, with few irritant hairs, the dorsal tepal strongly geniculate, the laterals broad, enclosing the ovary, the ventral thin, minute; ovary ca. 0.75 mm. long, ca. 0.5 mm. broad, ellipsoid; stigma linear, very short, unbranched; interfloral bracts minute; pedicel to 1 mm. long, simple, articulated near the apex, subglabrous. *Achenes* ca. 1.5 mm. long, 1.25 mm. broad, shortly stipitate, on a gynophore to 0.4 mm. long, asymmetrically obovoid, without wings, smooth, half covered by the lateral tepals, greatly reflexed; pedicel up to 4 mm. long, simple, subglabrous; dispersed with the perianth attached usually.

I have not seen the type of this species; and my interpretation of it is necessarily based on that of Professor Leandri.

This is the only species of sect. *Fleurya* to have bullate leaves which recall those of *L. decumana* of Malesia. In fact, not a few collections of the latter species from New Guinea have been found to have leaves almost similar to those of this species in shape and size etc. However, this similarity is entirely superficial because these two species belong to two different sections of the genus.

The relationship of this species to those of section *Fleurya* is very obscure.

MADAGASCAR:—South-East: Valley of Maloto: *Humbert* 6279 Oct.-Nov. 1928 (K & P).

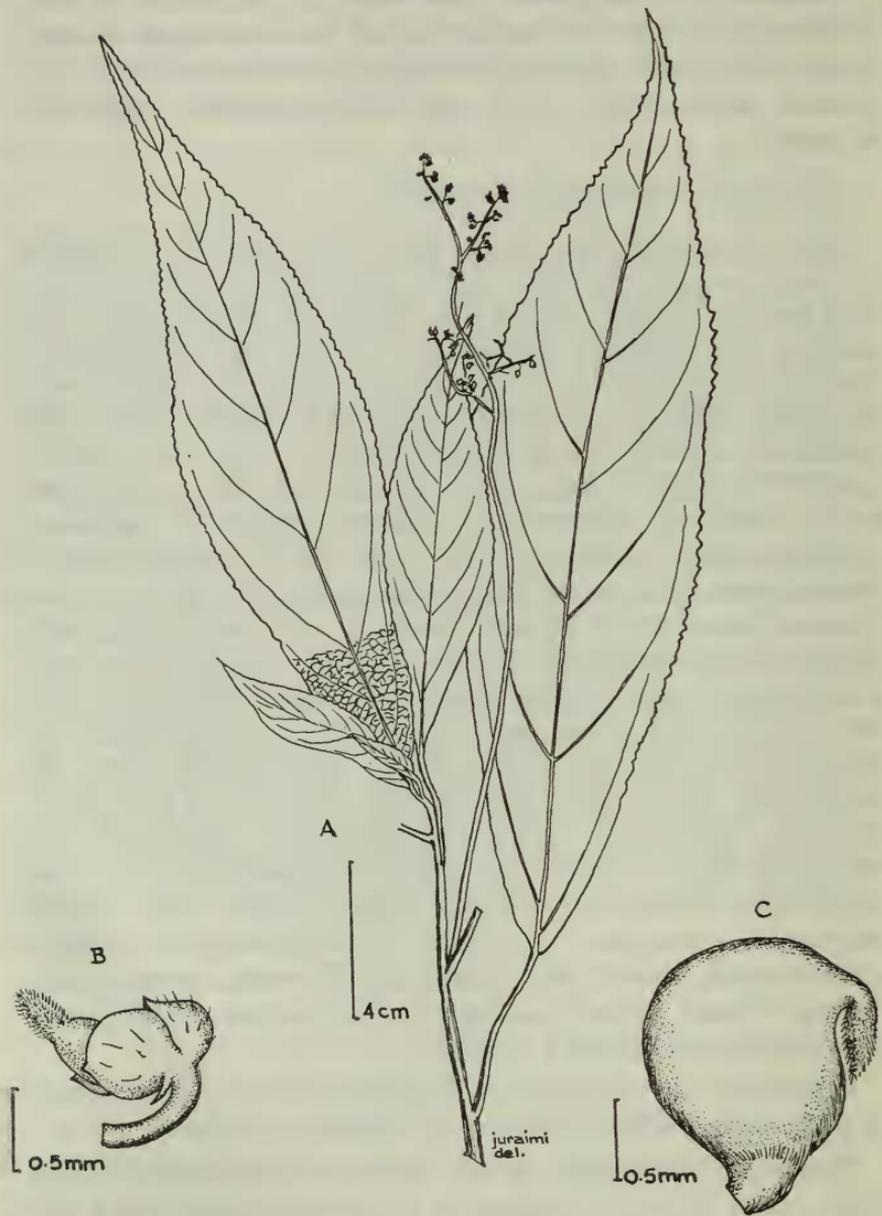


Fig. 22. *L. floribunda*: A, twig; B, female flower; C, achene.

## Species Excludendae

- |   |   |   |
|---|---|---|
| 1. <i>Laportea agusanensis</i> Elm.                     | = | <i>Dendrocide luzonensis</i> var. <i>luzonensis</i> . |
| 2. <i>L. amplissima</i> (Bl.) Miq.                      | = | <i>D. amplissima</i> .                                |
| 3. <i>L. anacardioides</i> C.B. Rob.                    | = | <i>D. luzonensis</i> var. <i>anacardioides</i> .      |
| 4. <i>L. annamica</i> Gagn.                             | = | <i>D. stimulans</i> .                                 |
| 5. <i>L. ardens</i> (Bl.) Smith                         | = | <i>D. sinuata</i> .                                   |
| 6. <i>L. basirotunda</i> Wu                             | = | <i>D. basirotunda</i>                                 |
| 7. <i>L. batanensis</i> C.B. Rob.                       | = | <i>D. meyeniana</i> f. <i>subglabra</i> .             |
| 8. <i>L. brunnea</i> Merr.                              | = | <i>D. stimulans</i> .                                 |
| 9. <i>L. carruthersiana</i> (Hiern)<br>K. Sch.          | = | <i>Obetia carruthersiana</i> .                        |
| 10. <i>L. chingiana</i> Hand.-Mazz.                     | = | <i>D. urentissima</i> .                               |
| 11. <i>L. conducipata</i> Elm.                          | = | <i>D. venosa</i> .                                    |
| 12. <i>L. contracta</i> (Bl.) Miq.                      | = | <i>D. contracta</i> .                                 |
| 13. <i>L. corallodesme</i> Laut.                        | = | <i>D. corallodesme</i> .                              |
| 14. <i>L. cordata</i> Warb. ex Winkl.                   | = | <i>D. cordata</i> .                                   |
| 15. <i>L. cordatifolia</i> Smith                        | = | <i>D. cordata</i> .                                   |
| 16. <i>L. costata</i> (Miq.) Miq.                       | = | <i>D. stimulans</i> .                                 |
| 17. <i>L. crassifolia</i> C.B. Rob.                     | = | <i>D. crassifolia</i> .                               |
| 18. <i>L. crenulata</i> Wedd.                           | = | <i>D. sinuata</i> .                                   |
| 19. <i>L. crenulata</i> var.<br><i>luzonensis</i> Wedd. | = | <i>D. luzonensis</i> var. <i>luzonensis</i> .         |
| 20. <i>L. crenulata</i> var.<br><i>nervosa</i> Winkl.   | = | <i>D. nervosa</i> .                                   |
| 21. <i>L. crenulata</i> var. <i>nitida</i> Winkl.       | = | <i>D. ternatensis</i> .                               |
| 22. <i>L. densiflora</i> C.B. Rob.                      | = | <i>D. densiflora</i> .                                |
| 23. <i>L. diffusa</i> C.B. Rob.                         | = | <i>D. meyeniana</i> f. <i>meyeniana</i> .             |
| 24. <i>L. elliptica</i> Merr.                           | = | <i>D. elliptica</i> .                                 |
| 25. <i>L. gaudichaudiana</i> K. Sch.                    | = | <i>D. cordata</i> .                                   |
| 26. <i>L. gaudichaudiana</i> Wedd.                      | = | <i>D. meyeniana</i> f. <i>meyeniana</i> .             |
| 27. <i>L. gigas</i> Wedd.                               | = | <i>D. excelsa</i> .                                   |
| 28. <i>L. glabra</i> Ridl.                              | = | <i>D. ternatensis</i> .                               |
| 29. <i>L. gracilipes</i> Elm.                           | = | <i>D. stimulans</i> .                                 |
| 30. <i>L. hainanensis</i> Merr. & Metc.                 | = | <i>D. stimulans</i> .                                 |
| 31. <i>L. harveyi</i> Seem.                             | = | <i>D. harveyi</i> .                                   |
| 32. <i>L. integrifolia</i> Wu.                          | = | <i>D. sinuata</i> .                                   |
| 33. <i>L. kotoensis</i> Yamam.                          | = | <i>D. meyeniana</i> f. <i>subglabra</i> .             |
| 34. <i>L. kusaiana</i> Kanch.                           | = | <i>D. latifolia</i> .                                 |
| 35. <i>L. lanaensis</i> C.B. Rob.                       | = | <i>D. stimulans</i> .                                 |
| 36. <i>L. latifolia</i> Gaud.                           | = | <i>D. latifolia</i> .                                 |
| 37. <i>L. latilanceolata</i> Elm.                       | = | <i>D. luzonensis</i> var. <i>luzonensis</i> .         |
| 38. <i>L. laxiflora</i> Wedd.                           | = | <i>D. peltata</i> var. <i>peltata</i> .               |
| 39. <i>L. leytensis</i> C.B. Rob.                       | = | <i>D. meyeniana</i> f. <i>meyeniana</i> .             |
| 40. <i>L. longifolia</i> Hemsl.                         | = | <i>D. longifolia</i> .                                |
| 41. <i>L. luzonensis</i> (Warb.) Wedd.                  | = | <i>D. luzonensis</i> .                                |

42. <i>L. mammosisetosa</i> Winkl.	=	<i>D. ternatensis</i> .
43. <i>L. meyeniana</i> (Walp.) Warb.	=	<i>D. meyeniana</i> .
44. <i>L. microstigma</i> Wedd.	=	<i>D. microstigma</i> .
45. <i>L. milnei</i> Seem.	=	<i>D. harveyi</i> .
46. <i>L. mindanaensis</i> Warb.	=	<i>D. meyeniana</i> f. <i>subglabra</i> .
47. <i>L. mirabilis</i> Rech.	=	<i>D. mirabilis</i> .
48. <i>L. monticola</i> Merr.	=	<i>D. venosa</i> .
49. <i>L. moroides</i> Wedd.	=	<i>D. moroides</i> .
50. <i>L. murrayana</i> Rendle.	=	<i>D. peltata</i> var. <i>murrayana</i> .
51. <i>L. oblanceolata</i> Merr.	=	<i>D. oblanceolata</i> .
52. <i>L. oblongata</i> Miq.	=	<i>Villebrunea</i> sp.
53. <i>L. papangensis</i> Leandri.	=	<i>Urera</i> <i>cligloba</i> var. <i>papangensis</i> .
54. <i>L. peltata</i> sensu Wedd.	=	<i>D. peltata</i> .
55. <i>L. peltata</i> Gaud. ex Decne.	=	<i>D. moroides</i> .
56. <i>L. peltata</i> sensu Merr.	=	<i>D. elliptica</i> .
57. <i>L. pendula</i> Merr.	=	<i>D. subclausa</i> .
58. <i>L. photinophylla</i> (Kth.) Wedd.	=	<i>D. photinophylla</i> .
59. <i>L. platyphylla</i> Merr.	=	<i>D. meyeniana</i> f. <i>subglabra</i> .
60. <i>L. pterostigma</i> Wedd.	=	<i>D. meyeniana</i> f. <i>meyeniiana</i> .
61. <i>L. pterostigma</i> f. <i>subglabra</i> .	=	<i>D. meyeniana</i> f. <i>subglabra</i> .
62. <i>L. pustulosa</i> Ridl.	=	<i>D. sinuata</i> .
63. <i>L. rechingeri</i> Winkl.	=	<i>D. rechingeri</i> .
64. <i>L. repens</i> Wedd.	=	<i>Urera</i> <i>repens</i> .
65. <i>L. rigidifolia</i> C.B. Rob.	=	<i>D. rigidifolia</i> .
66. <i>L. saipanensis</i> Kaneh.	=	<i>D. latifolia</i> .
67. <i>L. salomonensis</i> Rech.	=	<i>D. longifolia</i> .
68. <i>L. schlechteri</i> Winkl.	=	<i>D. schlechteri</i> .
69. <i>L. sessiliflora</i> Warb.	=	<i>D. sessiliflora</i> .
70. <i>L. sinuata</i> (Bl.) Miq.	=	<i>D. sinuata</i> .
71. <i>L. stenophylla</i> Quis.	=	<i>D. stimulans</i> .
72. <i>L. stimulans</i> (L.f.) Miq.	=	<i>D. stimulans</i> .
73. <i>L. subclausa</i> C.B. Rob.	=	<i>D. subclausa</i> .
74. <i>L. subglabra</i> Hay.	=	<i>D. meyeniana</i> f. <i>subglabra</i> .
75. <i>L. subpeltata</i> C.B. Rob.	=	<i>D. densiflora</i> .
76. <i>L. sumatrana</i> Merr.	=	<i>D. stimulans</i> .
77. <i>L. ternatensis</i> Miq.	=	<i>D. ternatensis</i> .
78. <i>L. thorelii</i> Gagn.	=	<i>D. stimulans</i> .
79. <i>L. torricellensis</i> Laut.	=	<i>D. torricellensis</i> .
80. <i>L. triplinervia</i> Merr.	=	<i>D. venosa</i> .
81. <i>L. urentissima</i> Gagn.	=	<i>D. urentissima</i> .
82. <i>L. venosa</i> Elm.	=	<i>D. venosa</i> .
83. <i>L. ventricosa</i> Gagn.	=	<i>Pouzolzia</i> sp.
84. <i>L. vitiensis</i> Seem.	=	<i>D. vitiensis</i> .
85. <i>L. vrieseiana</i> Wedd.	=	<i>D. peltata</i> var. <i>peltata</i> .
86. <i>L. warburghii</i> Winkl.	=	<i>D. longifolia</i> .

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